Public Utilities

FORTNIGHTLY

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March 17, 1938

"THOUSANDS AND THOUSANDS OF FARMERS . . ."

By Neil M. Clark

« »

Speaking of Experts

By Earl H. Barber

« »

Why Not TVA Rates?

By Riley E. Elgen

PUBLIC UTILITIES REPORTS, INC.
PUBLISHERS

The longer us period of th Anyheet Contr

Genuine SILEX

increases your loa

Since the advent of the Anyheet Control Silex . . . the model that keeps coffee at drinking temperature indefinitely . . . modern housewives insist their coffee be hot all during the meal—for Father with his steak, for Sis with her salad, and for Mother with her dessert.

This longer use period . . . this stretching out of the connected time from 20 minutes to 60 minutes . . . makes the Anyheet Control Silex a very profitable appliance for you to promote.

Take advantage of this longer use period. Get the additional KWH t extra hours of service offer you. In an Anyheet Control Silex in every h on your lines.

Whether you merchandise or not have a plan to help you secure this a tional wattage. Write for it today.

Anyheet Control Silex, black trim $ Red trim $7.45. Other electric t models from $4.95.

All Silex glass coffee makers have P brand glass, guaranteed against breakage.

THE SILEX COMPANY, DEPT. P, HARTFORD, CONN.

THERE IS ONLY ONE

Genuine SILEX
GLASS COFFEE MAKER
TRADE MARK REGISTERED U S PAT OFF

BREWING COMPLETED WITHOUT REMOVING GLASS FROM STO

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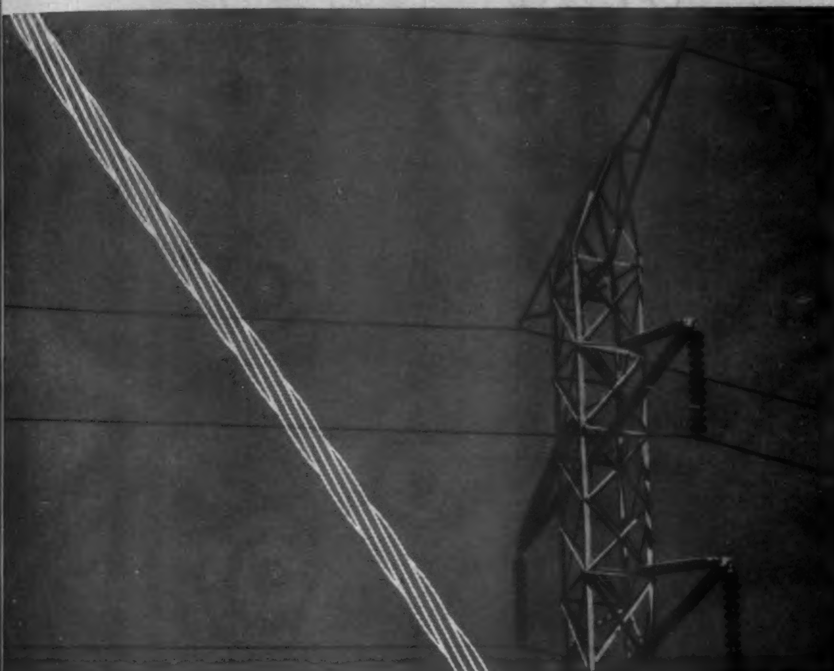
It's *know how* that counts



in making **Strand**

And there's plenty of "know how" back of Bethlehem Strand—the accumulated experience of half a century of strand manufacture by Williamsport Wire Rope Company, recently acquired by Bethlehem.

Take ground wire as an example. High-strength steel, possibly, may be specified. And 7-wire strand, double galvanized. Even with standard specifications covering these three points, Bethlehem (formerly Williamsport) Ground-Wire Strand has won high favor among utilities and transmission-line construction men.

"Know how" has enabled Bethlehem to improve wire joints, for instance. Often such joints are so brittle as to snap as the strand is being strung. Bethlehem uses a time-controlled, low-temperature type of welding that produces an amply strong joint and at the same time hardly affects the cold-drawn wire on either side. Gone are the sharp changes in steel composition caused by sudden flashing and cooling—and gone are the weakness and brittleness so often found in wire joints.

A small point, perhaps. Yet wire joints are the most vulnerable points when stringing ground wire. With Bethlehem Strand, these joints are no longer a problem.

Whether it's ground wire, messenger strand, or Form-set (preformed) guy wire; whether it's galvanized or bethanized (electrically coated), you'll find this "know how" invariably present in Bethlehem Strand.

BETHLEHEM STEEL COMPANY

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Editor—HENRY C. SPURR
Associate Editors—ELLSWORTH NICHOLS, FRANCIS X. WELCH
Contributing Editor—OWEN ELY

Public Utilities Fortnightly

VOLUME XXI *March 17, 1938* NUMBER 6

Contents of previous issues of PUBLIC UTILITIES FORTNIGHTLY *can be found by consulting the "Industrial Arts Index" in your library.*

Advertising Section

¶ *This magazine is an open forum for the free expression of opinion concerning public utility regulation and allied topics. It is supported by subscription and advertising revenue; it is not the mouthpiece of any group or faction; it is not under the editorial supervision of, nor does it bear the endorsement of, any organization or association. The editors do not assume responsibility for the opinions expressed by its contributors.*

PUBLIC UTILITIES REPORTS, INC., PUBLISHERS

Publication Office ..... CANDLER BUILDING, BALTIMORE, MD.
Executive, Editorial, and Advertising Offices ..... MUNSEY BUILDING, WASHINGTON, D. C.

PUBLIC UTILITIES FORTNIGHTLY, a magazine dealing with the problems of utility regulation and allied topics, including also decisions of the regulatory commissions and courts, preprinted from *Public Utilities Reports, New Series,* such Reports being supported in part by those conducting public utility service, manufacturers, bankers, accountants, and other users. Entered as second-class matter April 29, 1915, under the Act of March 3, 1879. Entered at the Post Office at Baltimore, Md., Dec. 31, 1936; copyrighted, 1938, by Public Utilities Reports, Inc. Printed in U. S. A.

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OKONITE VARNISHED CAMBRIC CABLES have a long-established record of reliable performance. This record is represented by thousands of installations in all conditions of use throughout the country.

OKOCLOTH FABRIC a more recent but well-demonstrated insulation, definitely increases the wide scope of varnished cambric . . . OKOCLOTH FABRIC was specially developed for conditions where a higher degree of resistance to heat and oil is required.

Full knowledge of the use possibilities of OKOCLOTH CABLES is important because of the increasing number of applications which will be found for them. Details of voltage and temperature ratings and other characteristics of OKOCLOTH will gladly be furnished upon request.

THE OKONITE COMPANY

FOUNDED 1878

EXECUTIVE OFFICE: OKONITE PASSAIC, NEW JERSEY

OKONITE QUALITY CANNOT BE WRITTEN INTO A SPECIFICATION

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Pages with the Editors

"As soon as man, expert from time, has found
The key of life; it opes the gates of death."
—*Edward Young.*

"AN expert," according to Noah Webster, who for obvious reasons of lexicography (cf. Webster) ought to know about such matters, is "one instructed by experience; hence, one who has special skill or knowledge in a particular subject, as a science or art, whether acquired by experience or study; a specialist."

WITHOUT dwelling too long on any extraneous implications in that last synonym, it would appear that the expert should be a pretty competent person with ideas of his own, hewing to the line of his convictions—let the slips fall where they may.

EXPERTNESS is, of course, a relative term of very universal application. Anyone who has ever seen Walter Johnson in his prime rifle a fast ball over home plate should have a good idea of what an expert is. Walter's proficiency was doubtless derived much more from practice than study. On the other hand, the easy grace with which so many of our former college professors suddenly emerge as administration economic advisers, all set to tell the nation how even the smallest wheels of business and agriculture should turn, can come only from profoundest study.

NEIL M. CLARK

Does the farmer in the dell really want utility service?

(SEE PAGE 323)

EARL H. BARBER

Is the day of the utility rate case expert passing?

(SEE PAGE 332)

FOR our own limited purposes we are inclined more toward the practical or empirical school of thought in the making of experts. There were those, for instance, who scoffed and snickered at our first fumbling efforts with the dial telephone. But after four years we can modestly claim to have mastered the contraption. Where, we ask defiantly, are those carping critics today? We are now engaged in a dignified but none the less determined struggle with one of those newfangled zipper brief cases received last Christmas, and confidently expect in due time to report progress. Goes to show what perseverance in the face of ridicule will accomplish.

BUT getting back to experts, surely many of us, who can claim to be expert at nothing more serious than settling all the international problems of the day in the course of a social evening, must wonder how it is that experts in utility rate cases can differ so widely in valuing the same property. Of course, it's a complicated business, because utility experts have to be double barrelled experts, retaining, as it were, the best features of both practice and study. We know of experts who can take unbelievable care to count every brick and bolt in a substation and thereafter go into a brown study and emerge with an inventory of how many units there might have been if the plant were built all over again. And then they can start again and tell you what the answer would be if the plant were built in a different way.

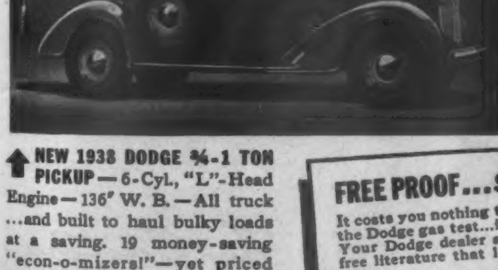
"I Switched to New DODGE TRUCKS to Get

19 MONEY-SAVING 'ECON-O-MIZERS'

....My Figures Show I Will Save Around $95 This Year On Gas Alone — *I Might Add, the Low Delivered Price Surprised Me"*

Says John Schissler, Freeport, Ill.

"DODGE LEADS IN MONEY SAVING FEATURES", SAY OWNERS WHO COMPARE



NEW 1938 DODGE ¾-1 TON PICKUP — 6-Cyl., "L"-Head Engine — 136" W. B. — All truck ...and built to haul bulky loads at a saving. 19 money-saving "econ-o-mizers!"—yet priced with the lowest!

TODAY, every truck owner owes it to himself to find out about the 19 special money-saving "econ-o-mizers" built into new Dodge trucks.

It's now surprisingly easy for anyone to compare Dodge against the other low-priced trucks. It takes only a few minutes, for example, to make the free gas test sponsored by all Dodge dealers. This test shows exactly how far any truck, new or old, goes on a gallon. It lets you prove to yourself exactly how much gas money the new Dodge truck will save for you...many Dodge owners report savings up to $6 and $8 a month on gas alone. In addition to the savings on gas, the 19 Dodge "econ-o-mizers" give equally sensational savings on oil, tires and upkeep.

DODGE

Division of Chrysler Corporation

At low cost, budget terms may be arranged.

Tune in on the Major Bowes Original Amateur Hour, Columbia Network, every Thursday, 9 to 10 P. M., E. S. T.

FREE PROOF...See Your Dodge Dealer

It costs you nothing to make the Dodge gas test...it's free. Your Dodge dealer also has free literature that lets you compare Dodge with the other lowest-priced trucks, feature by feature. Before you buy any truck, see your Dodge dealer.

FASCINATED by these occult powers, we took our doubts to EARL BARBER, who during his long service on the staff of the Massachusetts Department of Public Utilities has known most of the experts, man and boy, who have performed before the Bay state commission. Just now MR. BARBER is a private consulting engineer in Reading, Mass., but he recalls the expert well enough and the piece in this issue (starting page 332) is the result. But lest MR. BARBER'S good-natured treatment of the experts gives their colleagues in the mechanics of regulation, the lawyers and operating engineers, too much amusement, we reserve the right at some time not too far in the future to do a similar job on the law and the slide-rule.

SPEAKING of lawyers, we recently read a tale about Peter the Great's visit to England. When taken to the Inns he was amazed at the large number of bewigged jurists and busy barristers holding forth there. He was asked whether there were not also many great judges and advocates in Russia. "When I left my homeland," said Peter, "we had only two lawyers in all Russia and as soon as I return I am going to hang one of those!" Wonder if President Roosevelt ever heard that story.

AT this particular writing, we hear strangely conflicting reports about the efficacy of the new Farm Bill recently signed by President Roosevelt. To Secretary of Agriculture Wallace the bill is the finest flower of democracy. Senator Johnson of California thinks it will put the farmers of America in an economic chain gang. A good many of the Senators expressed themselves neither one way nor the other, but voted for it and let it go at that. Incidentally, we note that this act emerges with the final title of Agricultural Adjustment Act (AAA), which must make the ghost of its cousin, the late Blue Eagle (NRA), flutter in Valhalla or wherever it is that political ideals go when they fold up on earth.

RILEY E. ELGEN

A regulatory commissioner looks TVA rates in the mouth.

(SEE PAGE 343)

IF, however, the Farm Bill brings to the farmers of America increased earning power or a reasonable expectation of the same, it ought to make things look brighter than ever for the rural electrification movement. In this issue we are presenting an article by our popular contributor, NEIL M. CLARK, on the subject of the rural interest in utility service. MR. CLARK, whose writings appear in publications too numerous to mention here, is a professional magazine writer now residing in (or near) Chicago. He is a reformed editor, having started into the magazine business on the trash basket side of the desk shortly after his graduation from Harvard in 1912. After eight years of editorial work with *System* and *Magazine of Business,* MR. CLARK decided that he could write manuscripts as well as he read them. This was in 1920 and he has been writing ever since to an ever widening audience.

JUST to be different, we decided to discover, if we could, a new approach to TVA—some angle that had not yet been covered. This proved to be a harder task than we had imagined, for lo and behold our file on TVA started out with "ABANDONED, homesteads in flooded areas," and ended with "YOUTH, rehabilitation and employment." In between there were many odd subtitles like "FOLK DANCES" and "GLUE" (sweet potato). While debating whether to finish off the alphabet with "ZEBRAS, effect of TVA on," we received a piece: "Why Not TVA Rates?"

THE title didn't seem so provocative until we glanced at the author's name. CHAIRMAN RILEY E. ELGEN of the District of Columbia Public Utilities Commission. Then the thought struck us that in all the cross firing of opinions concerning TVA rates, few have taken the trouble to find out how the state regulatory commissioners really feel about them. Furthermore, the record is pretty meager concerning state commissioners who have volunteered much opinion on TVA rates. Except in the TVA area, where one running for election to any office must have an opinion about TVA (and it had better be a good one), most commissioners have not talked much about the matter. Here is one who has. The article starts on page 343. CHAIRMAN ELGEN is well enough known to FORTNIGHTLY readers from his former contributions to require no further introduction at this point.

THE next number of this magazine will be out March 31st.

The Editors

All the more reason for . . . calling in Remington Rand. Of course, every utility company has its own individual customer billing problems. And that is why Remington Rand, with its years of specialized experience in this field, can supply the right answer every time.

Whether you use the register plan, bill and ledger plan, stub plan or bill and punch card plan, there's a Remington Rand machine that will fit your needs exactly. You don't have to make your system over to fit any particular type of equipment.

With your billing installation—or any part of it—from Remington Rand, you get every modern feature that can save you money. Remington Rand, moreover, takes full responsibility for installation and results.

Free analysis of your present customer billing. Let Remington Rand study your billing procedure to see how speed and accuracy can be increased and costs cut. Phone Remington Rand in your city for free authentic analysis or write Remington Rand Inc., Buffalo, N. Y.

SEEN THE ELECTRIFIED MODEL "85"?
One of the most widely used machines in Remington Rand's complete line is the all electrified Model "85" which prepares bill and related records at one time and in one operation, eliminating needless duplication and assuring utmost accuracy.

OK.. it's from **Remington Rand**

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In This Issue

In Feature Articles

In Financial News

In What Others Think

In The March of Events

In The Latest Utility Rulings

PREPRINTS FROM PUBLIC UTILITIES REPORTS

Various regulatory rulings by courts and commissions reported in full text, pages 1-64, from 22 P.U.R. (N.S.)

A POLE-SETTING UNIT FOR A TWO-MAN CREW

WE HAVE SCALED DOWN OUR STANDARD HEAVY-DUTY LIGHT AND POWER SERVICE BODY TO A NEW BANTAM-WEIGHT LINE CONSTRUCTION UNIT. It is similarly equipped with pole setting equipment and provisions for carrying ladders, tamps, shovels and tools.

A light flexible unit of this type is ECONOMICAL FOR RURAL AND SUBURBAN CONSTRUCTION AND MAINTENANCE WORK. Heavier equipment with a large crew is retained at general installation work while two men with this unit service out-of-the-way places.

The DPL 102 body is 102 inches long and is equipped with a 240 pound derrick with telescoping side legs. The total weight of the body and equipment is slightly over 2,000 pounds.

THE AMERICAN COACH & BODY CO.
CLEVELAND, OHIO

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Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

EDITORIAL COMMENT
The Sun, Baltimore

"They are using the TVA to beat down prices of electricity and the Guffey Coal Act to boost prices of coal."

FLOYD W. PARSONS
Editorial Director, Gas Age.

"Inflation dollars are like hat-room checks—you can increase the number, but there won't be any more hats there."

FREDERICK STEIWER
U. S. Senator from Oregon.

"Business institutions now look to the government at Washington for the credit which once was available at home."

ARTHUR E. MORGAN
Chairman, Tennessee Valley Authority.

"Unified river control should be administered in the whole public interest and not for a special interest, such as power."

PHILIP CABOT
Professor of Business, Harvard University.

"The commission [SEC] is not in fact an executioner of holding company systems, but an undertaker, and its function is not 'to make dead,' but to bury the dead."

HOWARD BRUBAKER
Writing in The New Yorker.

"The President invites small business men to come to Washington with their suggestions. This will promote better understanding and put the railroads back on their feet."

EMIL SCHRAM
Director, Reconstruction Finance Corporation.

"What has blocked large-scale [railroad] consolidations up to date has been the refusal of all sections of the American public to accept the compromises necessary to effect them."

FRANK R. MCNINCH
Chairman, Federal Communications Commission.

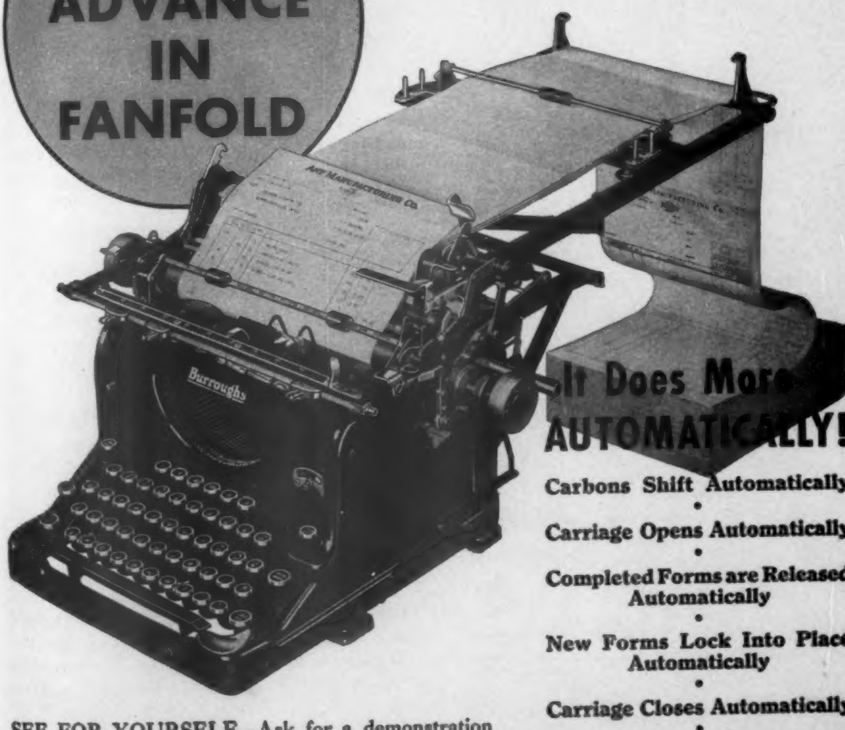
"Great work is capable of being done and has been done by means of radio telegraph and radio telephone when the elements have rendered the wire telephone and telegraph mute."

DONALD R. RICHBERG
Presidential adviser.

"It certainly is not going to save the little man to use the antitrust laws as the basis for preventing business men from coöperating, not only for the intelligent conduct of a chaotic industry, but for the purpose of exercising intelligent controls over a chaotic industrial system."

Burroughs
FANFOLD MACHINE

A DISTINCT ADVANCE IN FANFOLD



It Does More AUTOMATICALLY!

Carbons Shift Automatically
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Carriage Opens Automatically
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Completed Forms are Released Automatically
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New Forms Lock Into Place Automatically
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Carriage Closes Automatically
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Reverse tabulation, carriage return and spacing-up are controlled electrically by one key!

SEE FOR YOURSELF—Ask for a demonstration on your own work. Compare it, feature by feature, with any fanfold machine that you have ever seen.

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GEORGE H. EARLE
Governor of Pennsylvania.

"From a moral point of view we should give big business fair play. Actually how big business is treated does not seem important so far as taxes and regulation are concerned . . . "

GEORGE W. NORRIS
U. S. Senator from Nebraska.

"Of course, the propagandists know that the engineers have not told the truth. They oppose water development because they know it means cheaper rates and better service for consumers."

MAURY MAVERICK
U. S. Representative from Texas.

"Because of the consistent fight of the President for public power, and the change in the complexion of our courts, especially the Supreme Court, the Power Trust has been beaten to its knees."

HENRY EARLE RIGGS
President, American Society of Civil Engineers.

"I am not opposed to public ownership of any municipal utility when such ownership can better safeguard health or any other public interest, or can give better service or better rates than private ownership can do."

LEON HENDERSON
Consulting Economist, Works Progress Administration.

"Monopoly prices can be called controlled prices, rigid prices, administered prices, or manipulated prices. Don't let anyone confuse you by shifting the term. The effect on the consumer and on the country is just the same."

HARRY FITERMAN
Author, Minnesota State Finance and Tax Survey.

"All municipally owned utilities are exempt from the regular tax. Some, however, contribute substantial sums annually to their city or village; but in all cases, the state and county do not derive tax revenue from this source."

OGDEN WINSLOW
Writing in Public Service Magazine.

"Because no town can grow faster than its utilities, it is essential to community welfare that utilities grow even faster than the locality itself in order to have facilities available for commercial and industrial expansion."

C. W. KELLOGG
President, Edison Electric Institute.

"At the close of 1937, the unit cost of electricity in the average home was almost exactly one-half of what it was in 1913, although the cost of living is almost one-half as much again at the present time as it was before the war."

JAMES F. BYRNES
U. S. Senator from South Carolina.

"Today there are more than 135 separate governmental organizations in the city of Washington. Common sense dictates that these scattered commissions and bureaus, where essential, should be gathered into regular departments so that the President, through the Cabinet officers, can keep in touch with the various executives of government."

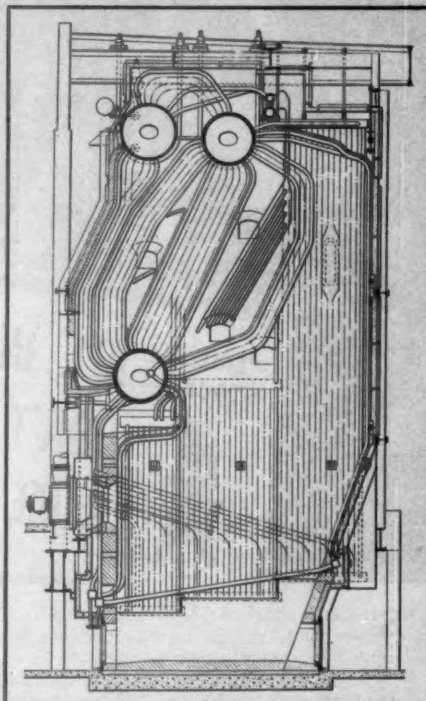
New C-E Unit for . . .

MISSOURI POWER & LIGHT COMPANY

Shown at the right is a sectional elevation of the new C-E Steam Generating Unit recently installed for Missouri Power & Light Company, Jefferson City, Mo. This unit, which will later supply steam to a high pressure turbine for superposed operation, is comprised of the following equipment: C-E Bent Tube Boiler, Elesco Superheater, C-E Water Cooled Furnace with screen tube bottom, Ljungstrom Air Heater, C-E Raymond Bowl Mills and C-E Type R Burners equipped for firing coal, oil or gas, or a combination of these fuels.

Limitations of available space necessitated that the unit be designed with unusually close clearances in order to provide the amounts of heating and heat recovery surfaces required to meet the capacity and efficiency specifications. The compactness of this unit is evidenced by the accompanying view.

This unit is designed for a maximum capacity of 100,000 lb. of steam per hr. Design pressure—900 lb. Temperature at superheater outlet—850 lb.



C-E

C-E PRODUCTS

All types of

BOILERS - STOKERS - FURNACES
PULVERIZED FUEL SYSTEMS
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Fabricators of pressure vessels, tanks, etc., welded or riveted, in carbon, alloy or clad steels.

COMBUSTION ENGINEERING COMPANY, INC.

200 MADISON AVENUE • NEW YORK

Canadian Associates: Combustion Engineering Corp., Ltd., Montreal A - 481

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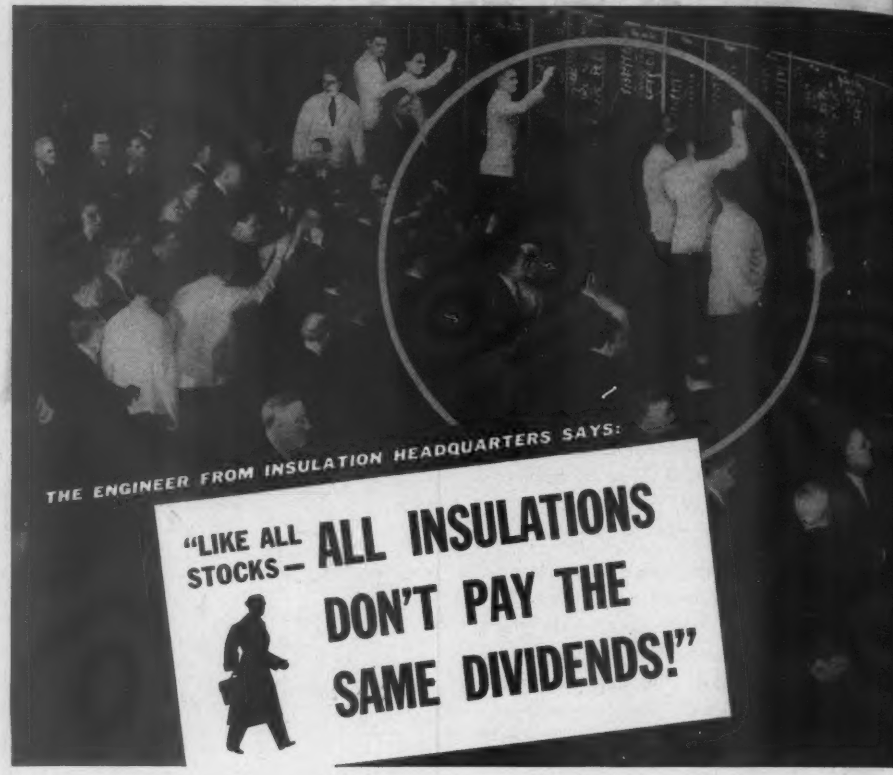

"SINCE insulations are purchased as an investment, the matter of dividends is of prime importance in their selection.

"As in the case of stocks, these insulation dividends are bound to vary. In fact, the cash returns in fuel savings promised by any given insulation are dependent upon three things . . . *kind, amount and application.*"

This statement made by the man from Insulation Headquarters deserves the careful attention of every insulation buyer.

It is based on experience gained by Johns-Manville through some 75 years of research and practical field service. Experience which has shown that one . . , five . . . or ten different kinds of insulations cannot possibly meet with maximum efficiency and economy the requirements of *all* heated or refrigerated equipment on the market today.

This is a truth long recognized at Johns-Manville. The present line of J-M Insulations totals some *forty* different types . . . each designed for a specific insulating service . . . And all sharing in common a time-established record for superior performance and durability.

• • •

Hence, having a line of insulations so unusually complete, Johns-Manville is in a position to help you choose the type and thickness of insulation that will assure maximum cash dividends, over the longest period of time, on each insulating job in your plant. For full details on all J-M Insulating Materials, ask for Catalog GI-6A. Johns-Manville, 22 East 40th Street, New York City.

JM Johns-Manville INDUSTRIAL INSULATIONS

An insulating material for every temperature . . . for every service condition

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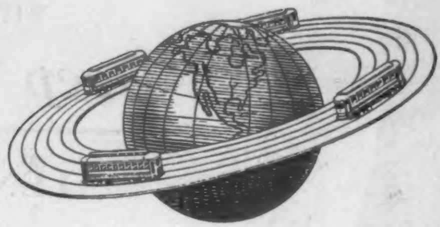

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business —

It was made so
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GOGGLES
WITH
"*Deep Curve*"
LENSES
Provide "*MAXIMUM*" Eye Protection

Makes no difference what the mechanical operation may be—whether it is grinding, chipping or whatnot—Super-Drednaut Goggles, fitted with Super-Drednaut Deep Curve Lenses can provide MAXIMUM eye protection for your workmen.

Super-Drednaut Lenses, deep curved for ADDED strength have proven through tests, long wear and hard usage that they provide a greater strength, greater resistance to hard blows than any other form of lenses, which greatly lessens the number of eye injuries.

Super-Drednaut is the ONLY goggle that embodies ALL THREE of the following features—

Non-Rubber Headband—which contains no rubber, yet maintains the necessary tension indefinitely.

Self-Adjusting Nose Bridge—which instantly and automatically adjusts itself to any size or shape of nose.

Super-Drednaut Deep Curve Lenses—the curvature of which tends to prevent the glass from being driven into the eye, should the lens become broken from a terrific blow.

ONLY curved lenses can provide MAXIMUM eye protection. Send for a Super-Dreadnaut TODAY and try it.

CATALOG NO. 10-A
Send for it TODAY

THE SAFETY EQUIPMENT SERVICE COMPANY
Buell W. Nutt, President :-: :-: 1230 St. Clair Avenue, Cleveland, Ohio

Manufacturers of a Complete Line of Accident-Prevention Equipment

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The new Davey side by side Model 105 delivers 105 cu. ft. of actual air . . . is economical, lightweight, efficient . . . exceptionally short and compact . . . easy to transport . . . ideal for every public utility use.

Every industry has a leader... in air COMPRESSORS **DAVEY STANDS ALONE**

Survey Davey's record in the compressor field . . . builder of the world's first air-cooled compressor . . . originator of tractor mounted units . . . exclusive maker of complete truck power take-off machines especially designed for utility use.

DAVEY COMPRESSOR CO., INC. KENT, OHIO

"The World's First Air-Cooled Compressor"

Our linemen report rot-proofed water-proofed **AMCO** far outlasts ordinary manila rope.

AMERICAN ROPE · TWINE OAKUM · PACKING PRODUCTS

"See American First"

Also Manufacturers of AMERICAN "SUPERIOR" ROPE

AMERICAN MANUFACTURING CO.
Noble & West Sts., Brooklyn, N. Y.
WESTERN FACTORY BRANCH:
ST. LOUIS CORDAGE MILLS, St. Louis, Mo.

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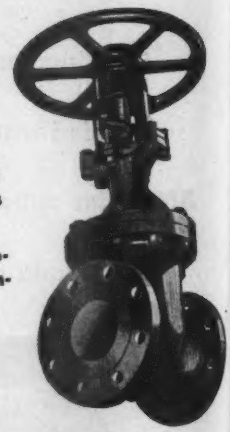
FIFTY YEARS' EXPERIENCE MAKES A DIFFERENCE

Half a century old! Since 1888, Darling has grown with industry. Many of us at Darling have been in the business longer than we care to have others remember. In this time we have learned more about building valves than you'll find in any book. We have learned how to simplify valve construction . . . with few moving parts, and these interchangeable.

For instance, take our cast steel gate valve. Features include the one-piece, double-grooved alloy wedge, or gate, split (in the center) to provide flexibility to compensate for varying pressures. The hinged construction between stem and wedge permits accurate seating of the wedge without side strains. Ample thickness of metal in the side walls resists erosion and corrosion.

For these and other features that insure dependable, economical operation—specify Darling for your next valve installation!



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Williamsport, Pa.

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Philadelphia

DARLING GATE VALVES

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"EVEREADY"
Industrial Flashlights
No. 3251
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Three-Cell Type

No. 3251
Two-Cell Type

"Eveready" Industrial Flashlights No. 3251 and No. 3351 have been specially designed to meet the needs of industry for flashlights which will give long and satisfactory service under unusually severe operating conditions.

NATIONAL CARBON COMPANY, INC.
General Offices: New York, N. Y.
Branches: Chicago, San Francisco
Unit of Union Carbide UCC *and Carbon Corporation*

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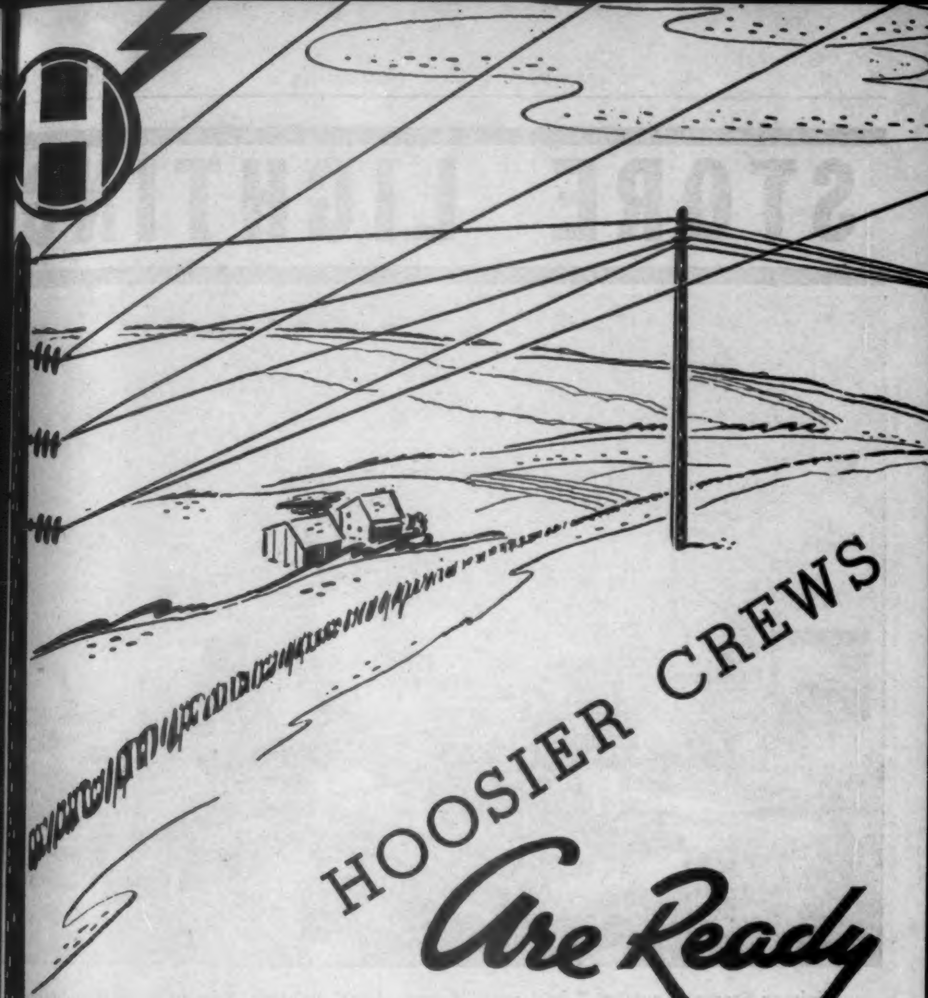

HOOSIER CREWS *Are Ready*

To supplement your organization . . . to save you the cost of breaking in additional linemen . . . to enable you to avoid discharging new men when projects near completion . . .

To build rural lines on a production basis at surprisingly low costs . . . to save you time and trouble as well as money, on your extra rural or transmission line construction.

These are the services Hoosier Crews have been performing for 17 years and are ready to perform for you.

HOOSIER ENGINEERING COMPANY

CHICAGO — 46 SO. 5TH ST., COLUMBUS, OHIO — NEW YORK

Canadian Hoosier Engineering Company, Ltd.
Montreal

ERECTORS OF TRANSMISSION LINES

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STORE LIGHTING

Minimax Stores, Houston, Texas, with "Louvre Lens" lighting. Two-fold merchandising objectives accomplished: (one) Indirect lighting for newness and modern appearance; and (two) downward or "punch" lighting delivered on merchandise displayed.

Guth "Louvre Lens"

An ingenious innovation of moulded, heat-treated glass, that when used in conjunction with Indirect Lighting, unfolds vast new fields for Utility Companies' Lighting Departments.

The Edwin F. Guth Company
2615 Washington Blvd.
St. Louis, Mo.

WORKING HAND-IN-HAND WITH UTILITY LIGHTING DEPARTMENTS

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Details that are Essential for Good Service

Cover provided with liberal overhanging flange furnishes a definite shed for water.

Improved Cover Clamps secure cover tightly in place.

Porcelain Stud-Type Bushings are co-ordinated with winding insulation.

Advanced Core and Coil Assembly with re-inforced end-turns and all the latest features to insure continuous service.

Copper-bearing steel tank is strong yet light in weight.

Above is shown a Wagner 15-kva, 2400-volt, type HEB stud-bushing-type distribution transformer. It has co-ordinated bushings and insulation and is self-protecting against lightning and, therefore, inherently a surge-protected transformer.

Wagner

Coordinated Bushing Distribution Transformers

AN investigation of utility companies' service records on distribution transformers will conclusively prove hat stud-bushing type transformers with coordinated ushings and insulation are more reliable, have less fail-res and require less maintenance than other types of istribution transformers.

ll Wagner stud-bushing type HEB distribution trans-ormers are equipped with bushings that are coordinated ith the winding insulation. In other words, the insula-ion level of the windings of a Wagner type HEB trans-ormer is higher than the insulation level of the bushings and the two are properly coordinated to cause line surges to flashover the bushings on the outside of the tank.

There are many other details that are essential for a transformer to give satisfactory service. A few of the essential features of Wagner type HEB transformers are pointed out above. Wagner transformers have many other improved features, which for the lack of space cannot be described here. If you desire full information on these transformers, mail the coupon shown below. It was placed there for your convenience.

Send today for literature on these transformers

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, U.S.A.

Motors Transformers Fans Brakes

Wagner Electric Corporation TD3S-18A
6400 Plymouth Avenue, Saint Louis, Missouri

Gentlemen:

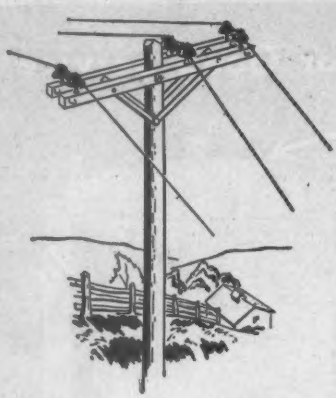
I am interested in your Stud-Bushing type HEB distribution transformers. Will you please send me full information on these transformers.

Name..

Firm..

Address..

City.......................... State..........................



Better Lines
are built with
Porcelain Products Insulators

PORCELAIN PRODUCTS, INC.
PARKERSBURG, W. VA., U. S. A.

HI-VOLTAGE INSULATORS —SINCE 1894

MASTER-LIGHTS

MORE IMPORTANT *Today*
THAN EVER BEFORE

"THE MOST POWERFUL AND SERVICEABLE"

HAND SEARCHLIGHTS—
WORKLIGHTS—
REPAIR CAR ROOF LIGHTS

MADE SPECIALLY FOR
ELECTRIC—GAS—TELEPHONE—
RAILROAD REPAIR CREWS

WRITE FOR FOLDER
CARPENTER MANUFACTURING CO.
Cambridge, Mass.—Cable address "Portalite"

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A New Low-Cost Foam Tool!

Combines Water, Solution and Air To Form Fire-Smothering Foam

ublic utilities are welcoming this revolu-ionary larger-capacity foam equipment for ammable liquid fires.

he specially designed PHOMAIRE Play ipe connects to your hose line (3/4" to 2 1/2"). Vhen the water is turned on, PHOMAIDE, new foam-making solution carried in a Hip ack, and air are automatically drawn into he water stream in the proper proportions o form foam.

here are no complicated preliminaries, no onfusing adjustments, no moving parts. And nly one man is required at the Play Pipe.

Less than 20 gallons of water at a pressure of 75 pounds or more are required per minute. This is the only efficient foam unit available for small lines. One gallon of Phomaide Solution makes 350 gallons of foam. 300 to 400 gallons per minute may be continuously produced by merely pouring additional solution into the Hip Pack.

This is NEWS. Without obligation, ask for descriptive literature, prices and a demonstration of the Phomaire Unit illustrated at the left. Don't wait! Mail your request now.

Get the Latest Foam Equipment

Phomaire PLAY PIPE and **Phomaide** SOLUTION

developed, made and sold by

Pyrene Manufacturing Company
NEWARK NEW JERSEY
ATLANTA KANSAS CITY CHICAGO SAN FRANCISCO

VALUE-

"Cleveland Baby Digger Model 95"
The "Pioneer Small Trencher" for city and suburban work.

"CLEVELANDS" are a Rea Investment Because of Thei Proven Performance, Endur- ance, Economy . . . . .

Records on literally thousands of miles of completed wor prove the correctness of "Clevelands" design and show sub stantial savings made with these machines.

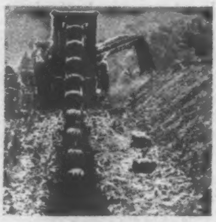
Built to meet requirements, do more work in more places i the shortest possible time, "Clevelands" are deservedly popu lar with "Public Utilities."

"Cleveland Model 110"
The logical machine for oil, gasoline and natural gas lines.

Compact, fast, flexible — easy to move around the job — eas to move around the country — unsurpassed for low maintenance and operation costs — "Clevelands" are built to endure, delivering maximum footage day in and day out.

"Cleveland Tamper-Backfiller"
A distinctive practical ma chine for permanently re placing dirt in excavation

Let us prove to you, on your own job, without obligation that "Clevelands" are the complete answer to Public Utility trenching requirements, and that they will deliver highest value per dollar invested. Write today. Get the details.



"Cleveland Pioneer" Ladder Type Trencher
Pivot Conveyor equipped for larger diameter pipe.

"Cleveland" mounted on special built trailer for truck speed transportation

THE CLEVELAND TRENCHER COMPANY

"Pioneers of the Small Trencher"

20100 St. Clair Ave. Cleveland, Ohio

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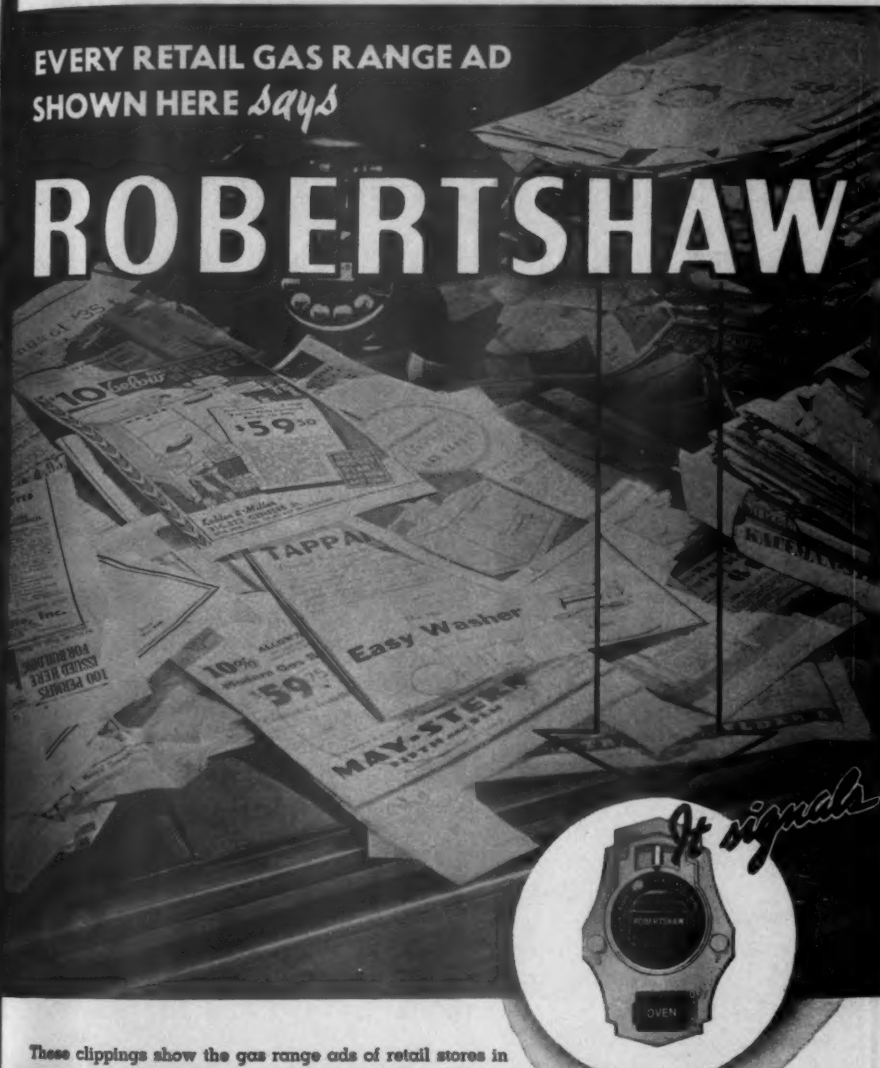

These clippings show the gas range ads of retail stores in every part of the country—and every ad proudly features Robertshaw Oven-Heat-Control.

Here is concrete evidence of the important part that Robertshaw plays in gas range selling—because every line in a retail ad must earn its salt.

If you *manufacture* gas ranges—choose Robertshaw because it's the Oven-Heat-Control that helps sell ranges. If you *sell* gas ranges—display Robertshaw in your ads—because it is the Oven-Heat-Control all women know.

ROBERTSHAW THERMOSTAT COMPANY • Youngwood, Penna.

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LINK-BELT

COAL AND ASHES HANDLING EQUIPMENT

For Efficient, Low-Cost Operation

THE PECK CARRIER

TRACK HOPPERS CRUSHERS POWER HOES

ELEVATORS AND CONVEYORS

SKIP HOISTS WEIGH LARRIES

ROTARY R.R. CAR DUMPERS

POWER TRANSMISSION MACHINERY

CRAWLER AND LOCOMOTIVE CRANES

Send for Catalogs *Address Nearest Office*

LINK-BELT COMPANY

Philadelphia Chicago Indianapolis Los Angeles Atlanta Toronto

Offices in Principal Cities

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HYDRAULIC TURBINES

FRANCIS AND HIGH SPEED RUNNERS

★ Penstocks

★ Butterfly Valves

★ Power Operated Rack Rakes

★ Gates and Gate Hoists

★ Electrically Welded Racks

NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY
Hydraulic Turbine Division
NEWPORT NEWS, VA.

INSTRUMENTS

TAGliabue offers a broad selection of instruments for measuring and controlling the energy factors so necessary for the proper operation of equipment. Ask for details and descriptive catalog of any of the following TAG Instruments:

RECORDING THERMOMETERS
RECORDING PRESSURE GAGES
INDUSTRIAL THERMOMETERS
PYROMETERS FOR INDICATING, RECORDING AND CONTROLLING
FLOW METERS
INTEGRATING STEAM METERS
CONTROLLERS FOR TEMPERATURE, PRESSURE, LEVEL, FLOW
MERCURIAL VACUUM GAGES
CHEMICAL THERMOMETERS • HYDROMETERS
OIL TESTING INSTRUMENTS • STEAM TRAPS


C. J. TAGLIABUE MFG. CO.
Park & Nostrand Ave's., Brooklyn, N. Y.

PIPE STOPPERS

GOODMAN GAS MAIN STOPPER — USED SINCE 1897 — 2" HANDLE & LOCKING SLEEVE

All Types

PIPE LINE SUPPLIES

Goodman Stoppers
Gardner-Goodman Stoppers
Goodman-Peden Stoppers
Goodman Cylindrical Stoppers
Bags—Rubber, Canvas Covered
Plugs, Service & Expansion
Pumps
Masks
Brushes
Tape—Soap & Binding

Catalogue mailed on request.

SAFETY GAS MAIN STOPPER CO.
523 Atlantic Avenue
Brooklyn, New York

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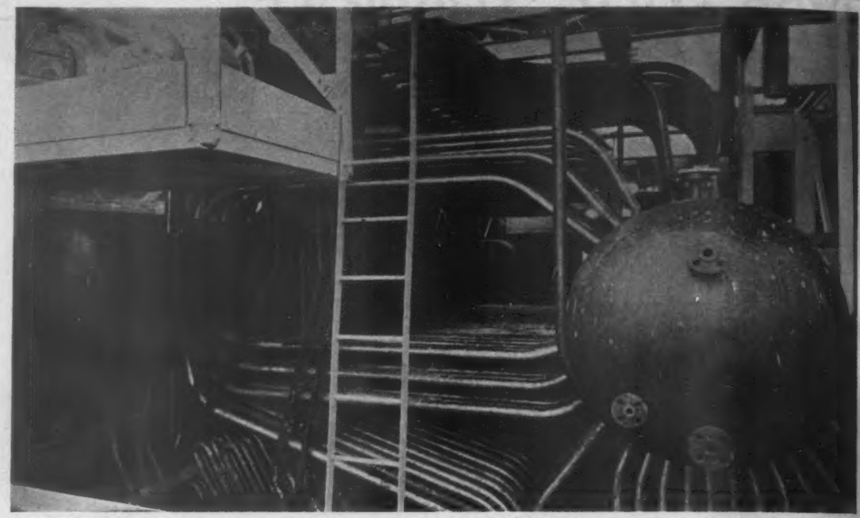

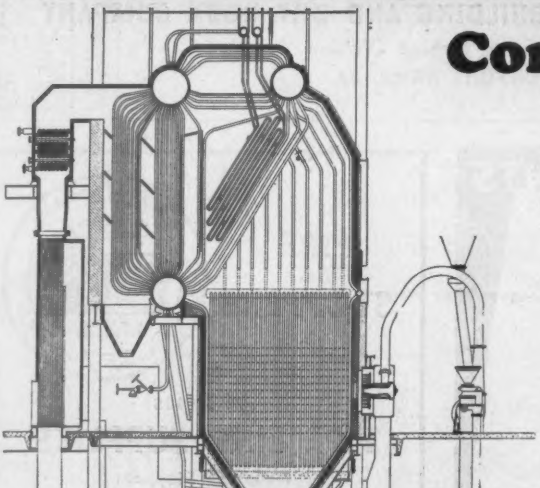

Construction at Dresden

Drawing and construction photograph showing one of two 110,000 lb. per hour, 725 lb. pressure steam generators now being erected for the New York State Electric and Gas Company.

Photograph shows fusion-welded steam drums, multiple tube superheater connections, and superheater element return bends at the lower left.

FOSTER WHEELER CORPORATION

165 Broadway, New York, N. Y.

FOSTER FW WHEELER

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SAVE $7 per thousand (and more) in writing all Utility Forms with the

EGRY SPEED-FEED

Requires no change in typewriter construction or operation

The Speed-Feed wipes out the wasteful, time-consuming, red ink operations necessary in manually interleaving carbons and loose forms, preparing them for typing and removing the carbons after forms are typed; non-productive work that costs approximately $7.00 per thousand sets on a six part form. Multiply this by the number of forms you use and you have but a part of the Speed-Feed savings!

By automatically inserting and removing carbons, the Egry Speed-Feed makes all the operator's time productive, increasing the output of typed forms per day 50% or more. Eliminates the use of costly, pre-inserted, one-time carbons, loose forms and carbons and other outdated methods; keeps all copies in the set in perfect alignment; instantly attached or detached without the use of tools. Yet, with all its advantages and economies, the Speed-Feed costs less than 2c per day for only one year! Investigate this indispensable Egry business aid. Literature will be sent on request. Demonstrations arranged without cost or obligation. Address Dept. F317.

The EGRY REGISTER Company
Dayton, Ohio
SALES AGENCIES IN ALL PRINCIPAL CITIES

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CIENTLY

Kinnear Rolling Doors open upward easily the year around. Out of the way! Convenient as a window shade! They permit space once used for "door storage" to be utilized . . . and today's efficient planning demands that every foot count. Furthermore complete designing cooperation, is assured when you specify . . .

KINNEAR
ROLLING DOORS

Electric control! Another way for an even greater saving in time and labor. The Kinnear Power Operator makes it possible to open and close doors by merely touching a button, which may be located at any number of convenient points. It is a completely reliable and foolproof unit that can be easily attached to old or new Kinnear Doors, so that they can be operated quickly and easily, without wasting any time, steps or effort.

Kinnear RoL-TOP Doors, made of wood or steel, combine the space saving features of Kinnear Steel Rolling Doors and the added advantage of light and vision. Like all Kinnear Doors they are custom made to the individual opening . . . are accurately counterbalanced by torsion springs . . . are made for motor or manual operation and can be economically installed in old or new buildings. Write for details of Kinnear's complete line.

Offices and Agents in Principal Cities

The KINNEAR Mfg. Co.

1760-80 Fields Ave., Columbus, Ohio

L&H Electric Ranges

With the new

HI-SPEED CALROD

Cooking is amazingly speedy—there is no waste heat. Calrod insures efficient performance, satisfied customers and a negligible service cost.

A. J. LINDEMANN & HOVERSON CO.
Milwaukee, Wisconsin

New Smartness
Styling and
Salability
in the 1938
L&H ELECTRIC RANGES

No Other Battery Like This One

USED and recommended by consulting and operating engineers all over the world, the Exide-Chloride Battery is worthy of the confidence reposed in it.

The Exide-Chloride is built primarily for control bus or other floating stationary service. Its life is exceptional; its maintenance cost negligible; its Manchester positive and Box negative plates unique in the field of storage battery engineering.

Write for Bulletin 204 and learn why this battery has characteristics that make it especially suitable for stationary service.

Exide
CHLORIDE
BATTERIES

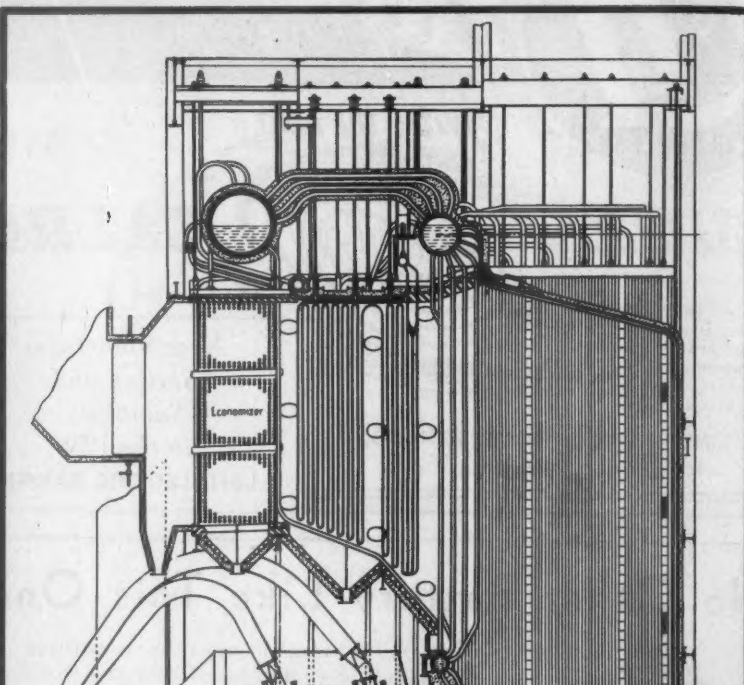
THE ELECTRIC STORAGE BATTERY CO.

The World's Largest Manufacturers of Storage Batteries for Every Purpose

PHILADELPHIA

Exide Batteries of Canada, Limited, Toronto

16 B & W



ESSEX STATION

Public Service Corp. of New Jersey. Two B&W Radiant Boilers, as above; 605,000 lb. steam per hr. each; 1475 lb. steam pressure; 950 F steam temperature.

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Radiant Boilers

ordered to date

more than 4,300,000 lb. steam per hour Combined Capacity

FUELS—
Pulverized Coal
Oil, pulverized coal in future
Gas, oil, or acid sludge, with possibility of pulverized petroleum coke in future

CAPACITIES—
60,000 to 605,000 pounds of steam per hour

PRESSURES—
900 to 2500 pounds per square inch

STEAM TEMPERATURES—
825 to 950 degrees Fahrenheit

THE BABCOCK & WILCOX COMPANY
85 LIBERTY STREET . . . . NEW YORK, N. Y.

BABCOCK & WILCOX

How to Save Make-up

and Boost Turbine Hours

Over half the power generated for industry in America comes from turbines using Gargoyle D.T.E. Oil Light. Socony-Vacuum's experience with over 9,000 turbines helps find operating economies

FOR LENGTH OF SERVICE and turbine hours per gallon of "make-up," no turbine oils measure up to Gargoyle D.T.E. Oil Light. That is why more than half the country's turbines rated 5000 kw. and over use them exclusively. This wealth of turbine operating experience Socony-Vacuum places at the disposal of your men.

Socony-Vacuum has "kept cases" on turbine operation. This experience is made available without cost to turbine men. Pamphlets prepared on this subject will be sent at your request. In addition, see the new movie called "The Inside Story," which reveals exactly what Correct Lubrication does. Just write to the nearest Socony-Vacuum office for these aids.

"72 Years of Experience Calling"

That is what the chief of a great utility wrote to one of his station superintendents. For when the Socony-Vacuum Representative calls on you, he brings to your problems the greatest experience in the oil business. Many operators find this experience helps them to chalk up records for efficiency and economy. Why not make sure to see if our man has something you can turn to your advantage?

SOCONY-VACUUM

OIL COMPANY, INCORPORATED

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · MAGNOLIA PETROLEUM COMPANY
CHICAGO DIVISION · WHITE EAGLE DIVISION · WADHAMS OIL COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA

GARGOYLE Lubricants

MAKERS OF MOBILGAS, MOBILOIL, GARGOYLE INDUSTRIAL LUBRICANTS

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A-E-CO

TAYLOR STOKER UNITS
TAYLOR STOKERS
FURNACES (Water-Cooled)
ASH HOPPERS

UNCOVER THE FACTS!

ELIMINATE THE SMOKE NUISANCE

Power plants in thickly populated areas of the United States and abroad keep their communities contented by firing with Taylor Stokers. Taylor Stokers satisfy the most stringent of anti-smoke ordinances. Investigate all the advantages of Taylor Stokers!

AMERICAN ENGINEERING COMPANY PHILADELPHIA
AE
CO

Division: AMERICAN ENGINEERING COMPANY
PHILADELPHIA, PENNSYLVANIA

Other Products: A-E-CO LO-HED MONORAIL ELECTRIC HOISTS, A-E-CO HELE-SHAW PUMPS, MOTORS AND TRANSMISSIONS, A-E-CO MARINE AND YACHT AUXILIARIES

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Specify

for

Economical Gas Purification

Connelly Products

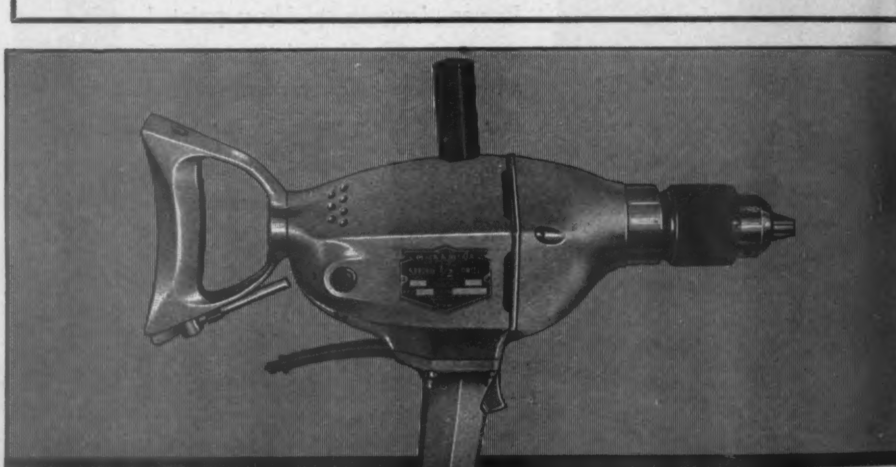
Unmixed Oxide, Iron Sponge—Regulators for District, Station, Service or Appliance — Back Pressure Valves — Caloroptic BTU Indicators—H_2S Testers, U-Gauges —Smyly Mercury Loaders — Distribution Supplies.

Write for Bulletin No. 100-B-1

This patented product is made under controlled manufacture to insure a uniform mixture of Connelly selected wood filler and a high percentage of active, hydrated, alkalized iron oxide. It is the ideal purification material that gives sustained activity and high capacity. Ample stocks ready for shipment by boat, rail or truck.

CONNELLY IRON SPONGE AND GOVERNOR COMPANY

CHICAGO, ILL. *New England Representative: T. H. Piser, Wellesley Hills, Mass.* ELIZABETH, N. J.



Black & Decker

World's Largest Manufacturer of BLACK & DECKER

PORTABLE ELECTRIC TOOLS

TOWSON, MARYLAND

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America rightfully looks to its basic industries for renewal of prosperity. Its colossal utilities are employing thousands of GMC trucks in the construction of giant power dams and in weaving a network of wire and pipe lines that project electrical and gas services even to the remotest outposts. Typical is the latest GMC innovation, the new 5-man line service cab, designed for the safety, comfort and efficiency of a vast army of utility workers!

Time payments through our own Y. M. A. C. Plan at lowest available rates

GENERAL MOTORS TRUCKS & TRAILERS

GENERAL MOTORS TRUCK & COACH • DIVISION OF YELLOW TRUCK & COACH MANUFACTURING COMPANY • PONTIAC, MICHIGAN

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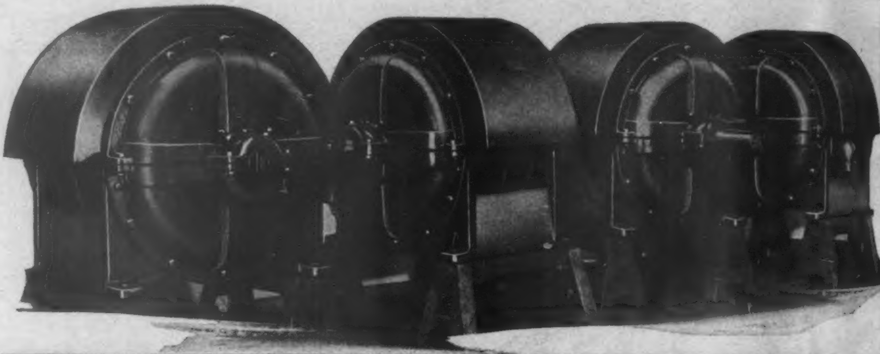

Sixteen for Waterside

ELLIOTT MOTORS have been selected to drive fans and pulverizers for the new high-pressure boilers in the Waterside Station of the Consolidated Edison Company of New York. There are four motors for each of the boiler units. The coal pulverizers — two per boiler — will be driven by Elliott 150-hp., 1200-r.p.m., squirrel cage motors. Forced and induced draft fans, driven in tandem by the same motor, two units per boiler, use the 600-hp., 690-r.p.m., squirrel cage motors as illustrated above.

Elliott motors are designed to the job and built to the high standards characteristic of all Elliott equipment which includes the broad line of power plant apparatus listed below.

Incidentally, the Waterside modernization also includes an Elliott 1,200,000-lb. per hr. deaerating feed-water heater.

ELLIOTT COMPANY

Electric Power Department:
RIDGWAY, PA.
District Offices in Principal Cities

L-691

Products: TURBINE-GENERATORS · MECHANICAL DRIVE TURBINES · ENGINES · ENGINE-GENERATORS CONDENSERS · MOTORS · GENERATORS · MOTOR-GENERATORS · DEAERATORS · FEED-WATER HEATERS DEAERATING HEATERS · CENTRIFUGAL BLOWERS · DESUPERHEATERS · FILTERS · VACUUM COOLING EQUIPMENT · STEAM JET EJECTORS · ELECTRIC HEATERS · TUBE CLEANERS · SEPARATORS · STRAINERS GREASE EXTRACTORS · NON-RETURN VALVES

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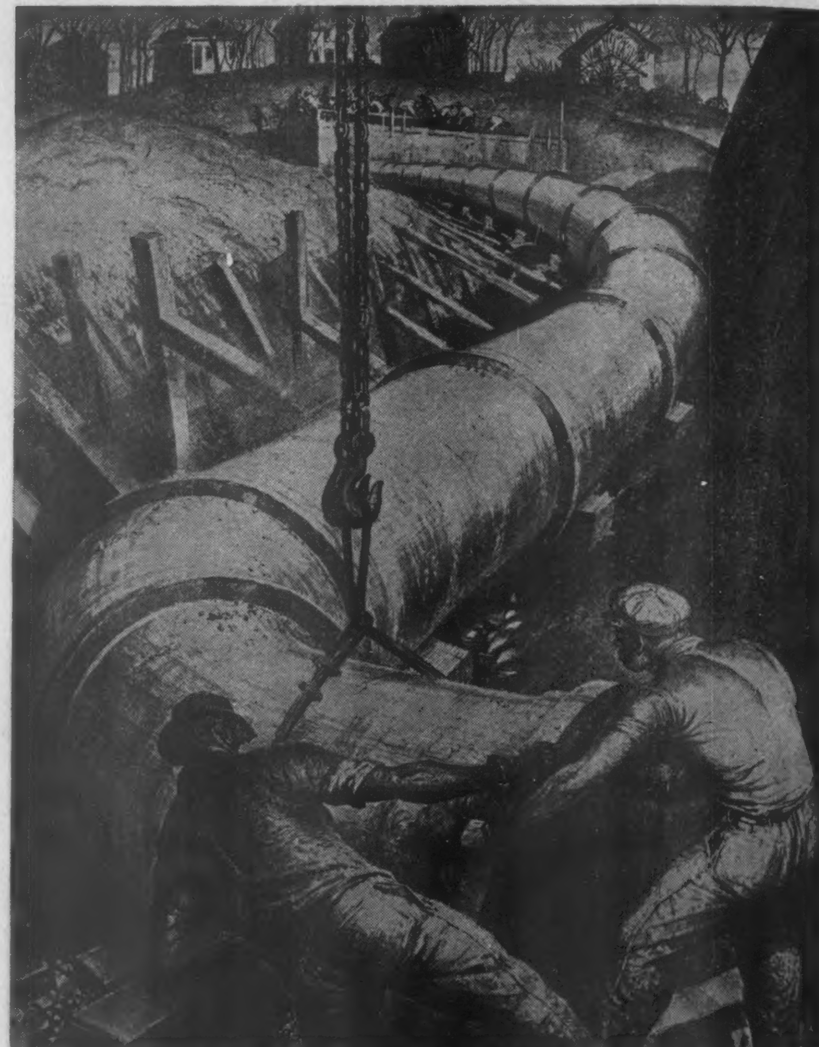
Utilities Almanack

MARCH

17	T*h*	¶ *American Water Works Association, New York Section, starts annual meeting, Jamestown, N. Y., 1938.*
18	F	¶ *Northwest Electric Light and Power Association, Business Development Section, ends annual conference, Medford, Ore., 1938.*
19	S*a*	¶ *New Jersey Motor Bus Association will hold annual meeting, Atlantic City, N. J., April 1, 2, 1938.*
20	S	¶ *American Gas Association will hold distribution conference, Cincinnati, Ohio, April 4-6, 1938.*
21	M	¶ *Liquefied Petroleum Gas Association, Inc., opens meeting, St. Louis, Mo., 1938.* ¶ *Oklahoma Utilities Association begins convention, Oklahoma City, Okla., 1938.*
22	T*u*	¶ *Pacific Coast Gas Association will hold spring technical conference, Los Angeles, Calif., April 7, 8, 1938.*
23	W	¶ *American Water Works Asso., Canadian Sec., opens meeting, Windsor, Ont., 1938.* ¶ *Texas Telephone Association starts meeting, Dallas, Tex., 1938.*
24	T*h*	¶ *Pacific Coast Gas Association starts spring sales conference, Los Angeles, Calif., 1938.*
25	F	¶ *Midwest Gas Association will hold annual convention, St. Paul, Minn., April 11-13, 1938.*
26	S*a*	¶ *Midwest Power Conference will convene for session, Chicago, Ill., April 13-15, 1938.*
27	S	¶ *American Chemical Society, Division of Gas and Fuel Chemistry, will hold meeting, Dallas, Tex., April 18-21, 1938.*
28	M	¶ *Edison Electric Institute, Sales Committee, starts session, Chicago, Ill., 1938.*
29	T*u*	¶ *Oklahoma Telephone Association begins annual convention, Oklahoma City, Okla., 1938.*
30	W	¶ *Missouri Association of Public Utilities will convene for annual meeting, St. Louis, Mo., April 20-22, 1938.*



From an etching by James E. Allen *Courtesy, Kennedy & Co., New York*

The "S" Curve

Public Utilities

FORTNIGHTLY

VOL. XXI; NO. 6 MARCH 17, 1938

"Thousands and Thousands Of Farmers . . ."

The story of the rapid progress of rural electrification in Illinois is a fair Corn Belt example of what is going on through the United States to bring the benefits of cheap power to the farm, and the greatest promise, says the author, lies in the fact that the big push is coming at last from the farmer himself.

BY NEIL M. CLARK

"Once an electric line is built, it is pretty apt to stay put. You can't pick it up and put it down on some other road where it would serve more farmers. When you build an electric line, it should be done carefully, correctly, and practically from the start."

—HENRY HORNER, *Governor of Illinois.*

JOHN Logan, Illinois farmer, can stand in his side yard and see the construction crew getting closer to his farm every day. They are putting the high line through at last.

It makes him feel good. Crops have been fair, prices tolerably satisfactory. He knows how much it will cost to have his house wired for electricity, and he has the money for it laid aside. Fixtures will cost a tidy sum too, but he means to have lights all through the house, yard, and barn, and he figures on connecting up with a motor to operate a feed grinder and a workshop. Maybe later he will pump water by electricity. Mrs. Logan is counting on an electric refrigerator, a vacuum cleaner, a fan for hot days in the kitchen; and they expect eventually to trade in their battery radio set for one that works from a wall plug.

John and his wife have waited for all this a long time. They have seen cartoons of Old Man Drudgery, woebe-

gone because workmen were building a high line, slinking out of the house with an oil lantern in one hand and an old-fashioned pump handle in the other, and remarking:

"Well, I guess that means I'm canned!"

They have driven after nightfall past other farm homes brightly lighted with electricity, barns and yards likewise lighted, and they have told one another how much it would mean to them, and how much safer from fire they would be, if they too could snap a switch instead of filling lamps with oil, trimming wicks, washing lamp chimneys. They could have had electricity before —but the price, they felt, was out of reason. They were asked to help heavily to underwrite the cost of building the line—and then pay for juice, too. The terms that the company is talking now, however, are much more liberal, quite within reach of people of the Logan's means. So their dream is near realization.

JOHN is just one of thousands and thousands of farmers. And Illinois is a fair Corn Belt example of what is going on over the United States in rural electrification.

"It is clear," says a report of the Illinois Commerce Commission, "that rural electrification has become a matter of prime importance. It has passed out of the stage of sporadic and isolated line extensions to serve a few scattered customers. Careful planning and coördination are now required to the end that service may be extended to as many customers and over as great an area as possible."

In the year 1934, as indicated by certificates of convenience and necessity issued by the commission, rural electrification had virtually come to a standstill in the state. Exactly 2 miles of line were built to serve 17 customers. In the first half of 1935, again, just 9 miles were built, to serve 23 customers. A strong upward trend, however, began in the latter part of 1935, when 207 miles were built to serve 554 customers. Still, things did not get going in a really big way until 1936, when no less than 2,893 miles of line were built, to serve 7,557 customers. The trend has continued in 1937. During the first half of the year, 1,745 miles were built to serve approximately 4,300 customers.

THIS, bear in mind, covers only lines under the jurisdiction of the commission. Municipals and the six federally financed REA projects in the state are not included: municipal utilities in Illinois are exempt by law from regulation by the commission, and the status of the REA projects with reference to state jurisdiction has not been raised officially. The percentage of all farms served has increased steadily, from 12.3 per cent, to 15.6 per cent, to 17.1 per cent, and now considerably more. The commission recently sent a questionnaire to all companies subject to its authority, requesting information on this point. The approximate number of farm customers as of June 30, 1937, was reported to be 39,581; there are approximately 231,000 farms in the state.

The six accepted REA projects in the state, in August, 1937, had more than 2,100 miles of line built or under construction, with a prospect of serving approximately 7,600 customers. The only municipal plants that have gone into the rural business at all are

the Springfield, Geneseo, and Fairfield plants, and they are in it only to the extent of supplying wholesale power.

ALL in all, it is probably no exaggeration to say that some 47,000 Illinois farms, or more than one in five, are or soon will be connected with central-station electric service; and extensions are continuing rapidly, especially in the northern part of the state, where the private utilities have funds, or credit to get funds, to make extensions. A goal of 100 per cent saturation, whether realizable or not, has been set in some quarters.

The REA likes to take a good deal of credit for renewed activity in rural electrification by the private companies. Probably it is entitled to a good measure of credit.

"Don't underestimate the government's rural electrification program," was the warning given me by Dr. Paul J. Raver, executive officer of the Illinois Commerce Commission.

It has done a great deal, he affirmed, to stimulate discussion and publicity, and to educate farmers to the desirability of having electricity on the farm. Thanks to reading endless magazine and farm-paper articles, seeing displays at state and county fairs, visiting demonstration farms, digesting agricultural college bulletins, and seeing the benefits of electricity in towns that can now be reached every day of the year on hard roads, they have reached the point of actively wanting electricity. It is a case now, in many places, of farmers themselves doing the pushing to get it.

THERE have been many important educating influences besides REA, however. REA has ridden on a tide that had already set. It is pointed out, for example, that a very considerable percentage of the students in twelve of the larger Illinois universities are from the farm and will go back to the farm; having known the advantages of modern conveniences, including electricity, most of them are not inclined to do without these on their return. Furthermore, good roads have done more than most people realize. Probably there isn't a farm in the state of Illinois more than 15 miles from a community having electric service; and 15 miles by car on good roads is virtually nothing.

It follows that farmers generally have become very well informed as to what electricity can do for them. They mean to have it if it can be had on equitable terms. And the chance for equitable terms is much greater since construction costs have been lowered, thanks to modifications in standards and to large-scale construction. In many Illinois communities, according to the

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commerce commission, where costs only recently ran from $1,000 to $1,200 per mile of bare line, estimates now are being made on the basis of $600.

EVEN so, however, not all farmers, presumably, are going to get service in the immediate future—or, perhaps, ever. In many localities lacking large towns and cities, even with lower construction costs, the investment required is too far beyond any possible return to make it feasible for companies that must depend on profit to build distribution lines. And under the present REA set-up, funds available or to be available will probably not come anywhere near meeting the demand for loans.

Congress this year appropriated $30,000,000 for the entire country, to be distributed to the states on the basis of farms not yet electrified; then the $30,000,000 under the President's economy program was cut to $27,000,000. Whether cash from other funds will be earmarked by the President for rural electrification is not yet clear. It appears, however, that only about $1,000,000 per year will normally be available for Illinois. Now, there are five or more additional coöperatives in the state, all set up, with applications for loans made or ready to make. They are anxious to go. And there is but little chance for anywhere near all of them getting the money they want.

"You can see," a government official remarked, rather resentfully, "that $1,000,000 in a state like Illinois is not a very big threat to the private utilities."

IT is suggested that this situation may have a boomerang effect politically, when communities have their applications turned down, and realize that the only reason why they can't have government gravy too is that they yelled for it a little late.

Be that as it may, the REA certainly has been enough of a threat in not a few cases to get action from private companies which formerly trod the rural electrification field with reluctant feet. In central Illinois an REA coöperative was proposing to build lines from a neighboring county in order to serve territory which the private utility, claiming that area, had not seen fit to serve. The private company got busy in a hurry. A formal agreement was reached. The coöperative promised not to enter the county. The company, in return, promised to extend service to the entire area.

I was assured by men close to farmers on this question, and by some farmers, that they are quite largely indifferent as to who serves them, whether coöperative or private company. "Whichever gets here first!" is the attitude many take. If there is any preponderance of preference, it is probably somewhat in favor of the private companies.

FARMERS have read some history. They know that while coöperatives have sometimes done well in this country, on the whole, experience with such organizations has not been conclusively favorable. One of the perennial problems, they are aware, is the danger of "political" management. Not Washington or Springfield. Local. Not graft. Pull. Several influential directors, for example, may have friends for whom they want jobs. The result may be two or three men employed who, even if receiving low salaries, may accomplish less than one

How Farmers Cut Electric Bills

"DEPRESSION experience shows that farmers who have once had electricity rarely give it up entirely. But under pressure they will sharply cut their use of current; and the uses they are willing to eliminate are, in many cases, heavy load builders. They will continue to use current for lights and the radio just as long as they can pay their bills—but other uses may very quickly go by the board."

good man at a higher but not excessive salary. Too many fingers in the pot have spoiled many a good mess of coöperative soup. Amateurism is not the best medicine in the highly technical electric business. Small private telephone companies have always had a pretty tough time of it, and the telephone business is far less intricate than the electric business.

I found considerable honest doubt, and not a little resentment, over the strongly emphasized policy of centralization now being insisted on by REA authorities.

THE question is asked, "If Washington insists on running it all, can red tape and costly antagonisms be far away?" And I was assured that REA is being very insistent. The executive to whom the remark was made quoted one of the highest REA officials as saying:

"We'll get the wholesale rates we want in Illinois from private companies, or else—"

By "else," he distinctly meant that Washington would finance the building of generating stations. Some of the money already allotted in Illinois is to be used for generating stations. To many lay minds there seems very little to choose between a federally financed steam plant and a federally owned and operated steam plant—especially when the banker is aggressive in his control of the borrower's operations. Constitutional questions would seem certain to arise on this point. Likewise states-rights questions that may be found to contain a heavy burden of political dynamite — if the state regulating authority is finally denied the right to exercise the same control over coöperatives as over private companies. Questions of taxation or nontaxation of the coöperatives bear primarily on the economics of their operation; but there is an inevitable kick-back to political consideration also.

AND of course everyone who looks beyond the immediate wish to get as much service as possible to as many families as possible, wonders what the outcome will be if the coöperatives cannot pay their way—as many feel that some of them, at least, can hardly do. Will there be resort to outright subsidy? Will city users pay higher rates that country users may pay lower rates? Will the coöperatives be absorbed in private systems? Or what?

These are some of the things in the minds of those who are watching and guiding rural electrification in Illinois.

The practical difficulties, of course, are about the same in Illinois as elsewhere: relatively small number of customers per mile of line, as compared with the number in cities; high cost of distribution lines per customer; need for a large load from each connected customer; and trouble about getting it. Special difficulties of serving farm customers were pointed out by a utility official who has been engaged in bringing electricity to Illinois farms for a quarter of a century.

"One of the things REA may be overlooking," he said, "is the farmer himself."

THE farm, he went on to say, is a special combination of home and industry. The farmer probably loves his family fully as well as the average man. He wants to give them as many conveniences and comforts as he can; and in buying electricity for purposes that affect them, he is first of all husband and father. But when he buys electricity for production purposes on the farm, he figures strictly *as a business man.* He is not going to do a job electrically unless he can do it cheaper, more conveniently, or both.

Depression experience shows that farmers who have once had electricity rarely give it up entirely. But under pressure they will sharply cut their use of current; and the uses they are willing to eliminate are, in many cases, heavy load builders. They will continue to use current for lights and the radio just as long as they can pay their bills—but other uses may very quickly go by the board.

As to the potential size of the farm load in any locality, a good deal depends on the type of farming generally practiced. Dairy farmers can usually use a lot of electricity to advantage: for milking, cooling, separating, pumping water. Grain farmers, however, typically have fewer profitable uses for electricity on the farm than industry. Then, of course, over considerable areas even of a state as fortunate agriculturally as Illinois, there are a good many farmers on farms of the near-marginal type, who probably could not afford electricity if it were brought to their doors and the current *given* to them: their farms do not yield income enough so that they can pay for the fixtures.

ON the whole, those closest to the situation see a very bright picture for rural electrification in Illinois. Said one well-informed utility executive:

"I believe we have not even begun to realize the uses to which electricity will be put on the farm in, say, another dozen years. I predict a great extension of off-peak water heating, water pumping, and of course refrigeration, considerable extension of special uses, such as soil heating, burglar alarms, shop equipment, and much besides."

His optimism is not founded on wish-thinking, but has grown out of personal experience over many years. He remembers when the number of electrified farms in northern Illinois could be counted on a few fingers. He helped to establish the first demonstration farm in Lake county, electrified throughout; and brought farmers to it on inspection tours from near and far. As a result of this and other factors making for increased demand, he has

seen one county in the territory served by his company reach virtually 100 per cent farm service saturation (meaning by "saturation," bringing service to all farms—there is, of course, no good guessable figure as to what the total use might be if every farmer used as much current as possible for every desirable purpose.) At the same time, he has seen an almost unbelievable increase in rural electrification in neighboring counties.

THE extent of rural electrification in the whole of Illinois today, as we have seen, is probably something over 20 per cent—23 per cent may be a fair figure. But in large parts of northern Illinois the approach to saturation is probably closer to 65 per cent. In this section of the state, REA coöperatives have gained no foothold and there is no prospect of their doing so. The private companies have undertaken to make all extensions demanded, on equitable terms. This might be termed insurance. On the other hand, in many cases it can be called definitely an investment with a hope of profitable return.

The companies believe in the long-run results of research, such as is being done by the department of agricultural engineering at the state university, designed to determine the kinds of electrical equipment the farmer can profitably use. Some of these results, they know, are bound to be negative for the present. Electric cooking, for example, is not thought as yet to be very sound, economically, in large areas where corncobs can be had for fuel by shoveling them up. Community coöperative refrigeration, a method strongly touted in TVA areas, has been studied in Illinois, and here it has been shown that the economies are extremely doubtful, particularly for members living farthest from the central refrigeration plant.

OTHER studies, more positive in results, indicate plenty of steadily growing uses for electricity on Illinois farms, and the companies that are not too much bogged down in financial mud holes are willing to gamble on that prospect.

Terms on which extensions will be made have been greatly modified. At present, with the exception of demanding a minimum bill, rural electric rates in Illinois are practically identical with rates charged for similar service in small towns. Plans vary, but generally provide for fixed monthly minimum guaranties sufficient to return to the company the cost of the line over a 50- to 80-month period. The following are essential features of some of the plans now officially approved and in use:

(a) The company furnishes the

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necessary extensions, transformers, etc., provided the customer guarantees a monthly minimum equal to 1½ per cent of the cost of the extension over a period of five years.

(b) The company will finance and construct a rural line provided customers guarantee a monthly minimum of $12.50 per mile of line. Some of the customers may pay a very low amount per month provided others make larger payments.

(c) The company will finance construction up to $150, $200, or $250 per customer, provided the latter guarantees a monthly minimum bill of $3, $4, or $5, respectively. (This company, which had been reluctant to make extensions before, reported that during the first twenty-eight days of the new plan, 358 farmers applied for service, and 172 living along existing lines were connected.)

(d) The company will meet the entire cost of line extensions, provided customers guarantee a monthly minimum bill of at least one-sixtieth of the cost. Another company does the same for a monthly guaranty of one-eightieth of the cost.

The guaranteed minimum, it should be said, is not a separate service charge. The customer is entitled to receive a specified amount of energy for the sum paid.

COMPLAINTS of farmers who want service and have not been able in the past to get it on equitable terms, have inclined officials to put pressure on the companies. One down-state company had shown a stubborn disinclination to make rural extensions. The commerce commission, however, ordered them to finance part or all of the cost of such extensions, saying: "The company has a duty under the law to make extensions into such territory under rules and regulations that are reasonable"; and warned that "the company should not separate out the best territory, leaving the less desirable territory entirely unserved, but should engage in a reasonable program which averages the various grades of territory and provides the broadest possible electrical development."

The cause of rural electrification is being pushed intelligently within the state by a rural electrification committee, appointed by the governor. The committee aims to coöperate on all promising fronts, favoring no particular method, but insisting on getting service to farmers by some means.

"We are generally concerned," says Walter W. McLaughlin, chairman of this committee, "for the need of a careful area development. Only by such planning can we be assured that several years hence electrification can still be progressive and will not be stopped by reason of cream-skimming that leaves nothing but the thin and less desirable areas without electric service."

I WAS told by a member of the committee that when they started, the members set as a goal 30,000 additional electrified farms within the state in four years. "It looks now," he said, "as though we might reach that goal in two years."

A six-point "program of rural electrification in Illinois for 1937," formulated by the committee, proposes:

1. Area coverage for future line extensions so that the greatest percentage of farms may be electrified.

2. Insistence upon high quality of service once it is installed.

3. *For utility companies*: Satisfactory terms for extending lines. Low construction costs. Rates that will encourage full use of the service.

4. *For coöperatives*: Speedy construction of lines. Sound management.
5. Establish a plan for completing the rural electrification of Illinois.
6. Lend every possible assistance toward providing reliable information to rural residents on the best and most profitable uses of electricity.

One important and thorough job done by the committee has been the preparation and publication of a map showing all electric transmission and distribution lines in the state as of January 1, 1937. Names of companies, points of interchange, generating stations, and so forth, are also shown on the map.

A STUDY of this map is illuminating. There are still scores of townships in which no blue lines or red lines appear—no distribution lines, no transmission lines. It is, of course, a fact that tens of thousands of farmers in the state still do not have electric service; cannot stand in their side yards, as John Logan can, and see the high line crews coming closer and closer. But it is the trend that matters. Ten or fifteen years ago, had a similar map been drawn, the red and blue lines would have been far scarcer.

It is only recently that the ideal of *complete* rural electrification has been proposed. How it can be fully realized, if it ever can be, is not yet clear. But an increasing number of people feel that it is a goal worth working toward, by every means available, for the common social good. And the greatest present promise lies in the fact that the big push is coming at last from the farmer himself.

Coming Features:

Waste in Ill-considered Federal Public Works Projects
BY HENRY EARLE RIGGS

The REA—A New Deal Venture In Human Welfare
BY JUDSON KING

The Subsidized "Yardstick"
BY FRANK A. NEWTON

Speaking of Experts

The author takes a shot at a type of public utility specialist sometimes appearing in rate cases, but distinguishes between him and an occasional engineer qualified by experience to speak with authority on some aspect of utility operation.

By EARL H. BARBER

THE structure of the rate case is well understood. Thanks to the orgy of analysis that took place in the decade before the war, when the survival of the unfittest preserved "reproduction new" from the litter of Smyth *v.* Ames, the anatomy of the rate case is almost a matter of common knowledge.

But anatomical structure, although adequate to satisfy our curiosity about such things as prehistoric monsters which have been killed off in the evolution toward a better world, is not enough to enable us to cope with something which still lives and feeds upon the public purse. What that requires is a knowledge of the ways of the living thing: its habitat, its tendencies, its life cycle, its reactions to such noxious arrangements as can be devised for its control.

During the war-to-end-war some biologists forsook their microscopes for a broad view of humanity, and found mass slaughter not a catastrophe, but the inevitable outcome of a biologic urge. What is needed now, in this war-toward-abundant-life, is the biologist who will again take the broader view, and, surveying a segment of our economic conflict, reveal the true nature of that handmaid of regulation known as the rate case.

At present such knowledge is lacking. Even among the otherwise intelligent one often finds the belief that the intent of a rate case is the reduction of rates.

There is plenty of data for any scientist who feels inclined to deal with the rate case: in fact there is so much data that even a layman sometimes finds isolated bits aligning into sequence. Take the question of habitat, for instance.

Prior to the turn of the century rate cases hovered over railroads. In the first decade they shifted to gas. Since the war they have gone to electricity. Is there any significance in these flittings?

The shift from railroads to gas came at a time when railroad fares had stabilized at 2 cents, but when gas rates were still going down. The shift from gas to electricity came after the price of gas had stabilized at a pre-war low of about 80 cents, but when electric utilities had entered upon a period of expansion with decreasing rates.

The association between rate cases and dropping rates seems obvious, but is it an instance of cause and effect? Does the rate case, like the knight of old, appear where assistance is needed, and stray off to new fields when distress has been relieved?

That assumption might seem justified if railroad rates had not subsequently doubled, and gas rates gone up by perhaps one-half, without tempting rate cases away from their latest host. Gas rates were left to electric competition, and railroad fares remained high until busses had done their infernal work.

But the electric business is still expanding, rates are coming down, and with periodic reductions the rate case goes hand in hand. Can it be that the rate case, like the bucket shop, thrives only in a period of decreasing prices, that it is a concomitant rather than a cause, a parasite rather than a public servant? Can it be that the rate case is something which performs no useful purpose, but merely grows fat on the sucker's purse?

Whatever the final word on the rate case may be, there is no doubt that it has some undesirable features.

The chairman of a certain commission used to be available for consultation between the hours of 5 and 6, when the office had quieted down for the day, unless a rate case was on the docket. In that event he went home decisively at 4. Ordinarily he could be depended on to work all day and talk all night if necessary, but when a rate case was on tap he went from the hearing room to the train.

He hadn't done anything; perhaps he had not said ten words during the entire sitting, but he had had enough. From 10 to 1, from 2 to 4, he had been obliged to listen, at least closely enough to keep the drift of what was going on, while public utility experts put in what they thought was evidence, or put questions characteristic of their calling, or while utilities met one or the other with the meticulous detail that tradition requires.

Although the chairman was capable of creative work, he had been obliged to hold his mind idle through another day, without even the refuge of abstracted thought. Associate commissioners, freed from the necessity of presiding, might escape boredom in whatever internal resources they possessed, but even their range was limited: convention required at least the appearances of attention.

Elsewhere the work of the commission had been in progress. Accountants, engineers, investigators—all those whose work heads up to the commissioners—had been carrying on. But the five men who were responsible for the conduct and direction of the whole were removed from those activities which constitute whatever is potent in regulation, and compelled to sit like a row of stuffed owls for the duration of the case.

It is no wonder that at the end of

the day, with a long succession of similar days both in retrospect and prospect, an able-bodied man should take himself off—that is, it is no wonder except to those who hold the appraisal type of rate case the flower of regulation, or to those who think that worth-while decisions are dictated by evidence.

The waste that a rate case imposes on commissions is also inflicted on utilities. One manager may look back upon a certain year as the one in which he built a new power station, or worked out a more effective rate, or did whatever managers do in the intervals between conventions and golf. But another can look back to that year of grace only as the one from which he escaped with his street lighting rate settled for another ten years—perhaps.

The waste of time and energy that are involved in rate cases is clear enough to both the industry and regulatory commissions, but neither has a convincing explanation of the cause. The glib statement that it is all the fault of the "public utility expert" carries no conviction whatever. He may be only an effect. One has only to press for a definition of the culprit to have the fallacy of the aphorism made apparent.

THE impatient retort that the public utility expert is an ass who doesn't know anything, but thinks he knows it all, will not stand in the face of even a brief consideration. Some public utility experts know a lot. They know law, or economics, or accounting; languages, philosophy, or history; and know enough to take advanced degrees in their subjects. Some of them have even been professors, and written books.

Of course it is reasoning in a circle to add that the books and lectures deal with the subject rather generally described as "public utilities," but it is clear enough, even on brief consideration, that the public utility expert may possess an unusual store of knowledge. If his testimony in rate cases at times shows a lack of acquaintance with some aspects of the electric industry, or in other words, if he knows a lot that isn't so, that is not a sign of ignorance, but rather an indication that he is carrying into professional fields an attitude usually reserved for politics or other aspects of private life, where hearsay or wishful thinking are adequate foundations for opinions.

Likewise the petulant comment that the public utility expert is a man who could not get a job at anything else, will not stand examination. Some of those whom our journalists label public utility experts are men of independent means. They do not need to work, but find, in the joy of public service, or in some other consideration, adequate compensation for their labors.

¶ "CAN *it be that the rate case, like the bucket shop, thrives only in a period of decreasing prices, that it is a concomitant rather than a cause, a parasite rather than a public servant? Can it be that the rate case is something which performs no useful purpose, but merely grows fat on the sucker's purse?*"

THEN again, some public utility experts secure a large enough slice of municipal appropriations to make professors' salaries and royalties mere trifles; to make even the salaries of utility managers seem mean. Whether these men could secure jobs with utilities or not is a moot question: no one could be expected to leave the excitement of flying from one juicy rate case to another for the job of utility manager, settled in some particular spot, immersed in prosaic detail, and prey to such public utility experts as remain with the flock.

Moreover, some of them, especially those who have not achieved professorial age or distinction, do get other jobs. Many men whose feet are firmly planted on utilities' desks were the public's champions of yesteryear. Whether they got their jobs in the ordinary go-getter sense of the word, or whether their jobs got them, is another matter. But it is certain that some who began as opponents of Mammon now dwell contentedly in the tents of wickedness, and without a demand on their energies which amounts to hardship.

Perhaps the difficulty in describing the public utility expert is the same as we encounter in describing an acquaintance whom we can recognize in ten thousand, although any description we can devise will fit every twentieth man on the street. An adequate description of the public utility expert may be one of the aspects of the rate case which await a master's touch, but fortunately he can be recognized easily with a little experience.

THE commission's office boy comes to the door with somebody who "just came to ask if you have in this state a formulated description of net income."

"We have," answers the chief accountant, taking down his volume of accounting directions and turning to the required definition.

"But that is not what I call net income. What I call net income . . . "

"Is of no interest to us," interrupts the chief accountant with a smile, for he has classified his visitor as one of those harmless nuts who go about airing their views. "What you have before you *is* net income for utilities in this state, and that is all there is to it."

"Well," says the visitor, settling into his stride, and taking a document from his pocket, "let me ask you this. Suppose you have a management contract that has a fee based on net income. Would you say . . . "

But by this time the chief accountant has made a private signal, and the telephone summons him to immediate conference. The visitor is not just a harmless nut; he is a public utility expert out fishing for something he can peddle. Talk with him and he has a "conference with the commission" to reinforce his sales talk. Answer a question and he has "a ruling of the chief accountant" that only time will live down. Safety lies in flight.

IT is possible not only to recognize the public utility expert, but to discriminate between him and the occasional engineer who is qualified by experience to speak with authority on some aspect of utility operation. Although the latter might seem to be qualified to pose as experts, at least in a limited sense, they are not so designated by journalists. So far as the

The Waste in Rate Cases

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public prints are concerned they are merely gas, electric, or hydraulic engineers, identified by the towns they hail from, if at all.

Such men are not often seen in commission offices. They are too seldom retained on the public side of rate cases, they do not need to go about fishing for information, and quite possibly they are averse to running about peddling their wares. But when one does happen into the offices of a commission on some incidental mission, a surprised welcome is apt to greet his appearance.

Even utilities which freeze into watchful silence when a public utility expert comes to inspect the plant—and there are some of them who know what it is all about—tend to relax in the presence of the mere engineer. They do not volunteer damaging evidence, of course, when he is on the wrong side of a case, but there is not much about a plant that can be concealed from the experienced eye, and there is the assurance that what is seen will not be misunderstood: as when, for instance, pigeon droppings were mistaken for napthaline deposits resulting from corroded metal. Experience makes for common interests, and a visit is apt to be more pleasant than otherwise.

NOT only the manner, but the work of the mere engineer is distinguishable from that of the public utility expert, especially if he happens to be on the same side of a case. In one case a public utility expert applied to the state's attorney as soon as trains could get him there after the news broke in print. His record was little less than phenomenal, in addition to which he was the father of a novel method which would eliminate engineering services and substitute accountants who could be hired at a trifling cost per head. The attorney, inexperienced in the ways of rate cases, welcomed the aid dropped from Heaven, and the public utility expert went to work, a cloud of accountants in his train.

During the ensuing year the attorney learned a lot about the ways of rate cases, and quite a bit about the ways of his phenomenal public utility expert; one of which was a remarkable ingenuity in devising reasons why he should not bring his pigs to market just yet. But eventually he was cornered and made to confess that his bright idea wouldn't work: it had failed so utterly that even more money couldn't be expected to yield results.

Fortunately an engineer of national

standing had been enlisted on the public's side, and he was given the job that the flock of hapless accountants had been unable to do. He did it, working alone, in nineteen days.

The resulting bills were illuminating. The public utility expert and his accountants had gone through $20,000 without getting the answer: the engineer got the answer for $1,900.

POSSIBLY the distinction between these two classes of authorities—those who know something and those who know everything—may throw some light on the essential nature of the rate case when the scientist of the future comes to unriddle the subject, but it is fairly evident, even now, that the public utility expert is only a detail. To blame him for the blight which rate cases cast over industry and regulation is at best only a sophistry, and may be a red herring drawn across the trail.

For it is possible that the public utility expert is only a by-product of the rate case, and that both commissions and utilities lie closer to the cause than the creature they blame.

The aid and comfort commissions give public utility experts is a matter of common observation. I once watched a prolonged rate case, which, as rate cases go, was of a high order. No expert was retained, but an engineer of unquestioned competence gave his services to the municipality in which he resided. The engineer was familiar with the general practice in rate cases, and set up his yardsticks—reproduction new less depreciation, original cost, and what not—until everyone was wearied of the chatter. Everyone except a new commissioner. He was elated.

"This is the first case that has really been *tried* before this commission. Now I can sit down with the evidence, just like a judge on the bench . . ."

"And much good may it do you!" I thought, for the other commissioners were men of long experience; and judgment, rather than formulae, was called for by a crafty arrangement between contractor and owner which had led to something too crooked for any kind of straight stick to measure. But the inexperienced commissioner voiced a yearning very common among those of his calling.

ANOTHER commissioner stated it more comprehensively. "We don't know anything about these utilities. If someone comes in and accuses them, they have to come in and fight back. Out of the row we gather something: something, even if we don't get very much."

To the suggestion that information would be more reliable and much less expensive if the commission sent its help to get anything that was wanted, he was equally positive. "No, we're a quasi judicial body: we sit like a court. No court goes nosing around on its own account. It waits until somebody comes in and asks it to act, shows how and why it should act, and shows where it has authority to act. That's what we ought to do. Courts are wise guys: they know how to keep out of trouble."

Less thoroughgoing than this philosophy of regulation, but equally encouraging to the public utility expert, was the statement made by a commissioner of exceptional ability when we were discussing a picturesque "expert" of pre-war vintage who had been very active in the state.

"A sketch?" said the commissioner gravely. "He is, rather. But I'll tell you this. In all the times he has appeared before us he has never influenced a decision, yet I do not think he has ever appeared without my getting some new fact or idea as the result of his appearance."

An approximate estimate showed that the ideas which were the only fruit of years of experting had cost the public about $1,000 apiece. Were they worth it? "No!" said the commissioner, decidedly.

So long as commissions create a favorable environment, the public utility expert may be expected to remain with us, and some raven may be expected to see that he is fed. If the ravages of the local representative of the power trust are not sufficient in themselves to occasion a spontaneous appropriation from the municipal treasury, some politician in need of advertising may be found who will see the advantages of a rate case, and persuade "the boys" to come through.

On the other hand, if some commissions frown on the public utility expert, it is hard to see how he can thrive—at least to the extent he has heretofore. In a preceding article I referred to a commission which stated that it had means of securing information which no expert, however competent, could hope to possess. Let a commission make such an announcement and it would probably be difficult, even for a local politician, to secure an appropriation to finance a public utility expert.

But more than the disapproval of commissions is required to put the public utility expert where he belongs. If he cannot grow fat unless he has the approval of regulatory authorities, he can at least exist.

If a youngster graduates with a thorough grounding in the theory of rates, and makes a practical application of his knowledge on the rates of some large utility, he may never have an occasion to lobby for a municipal appropriation, or to appear before a commission. He may sell his discoveries directly to the public in the person of some good-sized consumers. Then, if the consumers are strategically chosen, the utility may wake up to the fact that it needs that young man in its own organization.

Why a utility should prefer to buy off the youth, rather than revise a defective scheme of rates, is an interesting subject for speculation, but the consideration here is that it is the utility which has enabled a public utility ex-

¶ "POSSIBLY *the distinction between these two classes of authorities—those who know something and those who know everything—may throw some light on the essential nature of the rate case when the scientist of the future comes to unriddle the subject, but it is fairly evident, even now, that the public utility expert is only a detail. To blame him for the blight which rate cases cast over industry and regulation is at best only a sophistry, and may be a red herring drawn across the trail.*"

pert to pass to his reward, and has created a vacancy in the ranks for subsequent enterprise.

The brief course of public service which has just been outlined calls for industry and application, but it by no means calls for the ingenuity required of the public utility expert who is not willing to forfeit his professional standing, but still appreciate the value of a steady income. He, likewise, must approach some large utility in order to have his modest subsidy pass in a multitude of other disbursements without attracting attention. But he stays off the payroll: there is no regular employment. Instead, special services are rendered—so special that they often defy description. Payments, too, being irregular both in time and amount, may be expected to defy detection, unless some inquisitive authority should happen to go looking for that particular thing, which is not likely.

Of course this arrangement limits the field of the public utility expert. He cannot appear against utilities which secretly pay him, or at least he shouldn't, although in the case of greedy persons some very painful internal complications have arisen.

A variation of the foregoing arrangement consists of getting retained, not by some particular utility, but by some association or organization financed by utilities at large. Why this should broaden the field of the public utility expert, or for that matter should permit him to operate at all, is not apparent, but for some obscure reason it has been known to work.

Long years ago I had occasion to look over the books of an association of utilities for the purpose of settling some particular question of fact, and in doing so my roving eye was caught by recurring payments made to sets of initials. One set registered, then another: they seemed to fit a group of public utility experts then flourishing in the neighborhood.

"Who are these XYZ birds?" I asked the custodian of the records.

"Please! Don't ask me that."

"All right, I won't. But what did they do for the money?"

"That's easy. Just one word."

"Work?" I suggested helpfully.

"Gimme that book! You're making light of serious matters."

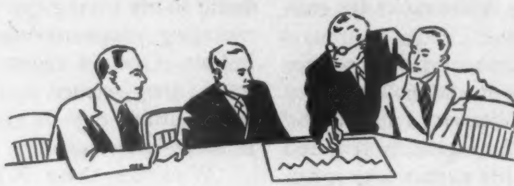
If some of us were disposed to take the public utility expert lightly, the commission of the period was not. It set out to abate the nuisance. Eventually, against the apprehension of many utilities, it dried up municipal appropriations for rate cases, and separated subsidized operators from their hosts.

"There," said the chairman to the president of a utility which had been a milch cow to the profession, "they're gone, and it's your business to see that they don't get back."

"But they'll make trouble if we don't pay them! . . . How? Why there's that investigation of our interstate contract the legislature ordered. You've set the hearing for next week. If we don't hire Whoosis—"

"You leave him to us, and keep your hands off."

For two days the president did. Whoosis appeared as expected, and ran true to form. He neither approved or disapproved the contract: to approve it would be to espouse the company's cause gratuitously; to oppose it would be to shoot the bolt he might be re-



What Is a Utility Expert?

"PERHAPS *the difficulty in describing the public utility expert is the same as we encounter in describing an acquaintance whom we can recognize in ten thousand, although any description we can devise will fit every twentieth man on the street. An adequate description of the public utility expert may be one of the aspects of the rate case which awaits a master's touch, but fortunately he can be recognized easily with a little experience."*

tained to withhold. He discussed the contract dispassionately, like any seeker after truth.

AT the end of the first day of the hearing he had the floor to himself. During the second day he began to tire, and to throw suggestions that if he were given time, and opportunity, to make a little investigation he could answer more definitely, or discuss the problem more completely. There was a delicate emphasis on the word "opportunity" but under the forbidding eye of the chairman the president kept his seat; although with difficulty, and wound up the day in an advanced state of jitters.

"No," said the chairman, "you let him alone. What harm can he do? He isn't saying anything, and even if he should, who would hear it? All the reporters have gone home in disgust. The man has washed himself out; now let him dry up."

"But the time we're all wasting!"

"I grant that. But if you hire him now, you'll either hire him forever, or waste time on every subsequent occasion. I propose to settle this issue if it takes all the rest of the week."

It did take the rest of the week, almost. But eventually the public utility expert was driven to taking sides—which side was unimportant—and the company learned the old lesson that if one only has the courage to say no, one does not have to pay and pay and pay.

IT is strange how all the courage, all the swashbuckling enterprise, all the willingness to take risk that is supposed to characterize private ownership, tend to evaporate in the face of a rate case. I do not refer to those utilities which hold with St. Paul that the defense of the unrighteous is the law, and welcome a rate case as an opportunity to demonstrate the extent of their moderation, but to those which regard the rate case as an unnecessary evil, and the public utility expert a pest.

I once made this comment to a manager who was confronted with a rate case that had been brought to reëlect a city official, and for no other purpose, because neither the company's rate nor income was out of step with the general procession.

"What can I do?" the manager demanded.

"You can do nothing. Just that. Persistently and consistently, do nothing." To his blank astonishment I went on to explain.

"You say you have no idea of making an appeal, no matter what the decision may be." (This was in Massachusetts, where appeals to the Supreme Court are not considered good form.) "All right, then you are not obliged to submit evidence to justify your present rate. You are not obliged to do anything. Don't. Just add your name to the city's petition asking the commission to fix your rate, appoint some goat to represent the company at the hearings as a mark of respect to the commission, offer to give the commission any data it may personally want, and go about business as usual."

"Do you mean to say I should join in that lousy petition?"

"That, or another. If you don't like that one, make up one of your own. The law lets a company ask the commission to fix its rates. It has been done many times."

"And if I did, what would happen?"

"What could happen? It takes two to make a fight, or a rate case, which is the same thing. If you will not fight, what will there be for excitement? The whole thing will fall flat."

"But the city will hire a public utility expert, and you know the wild charges they make."

"Yes, and I know how much attention is paid to them."

"I know, but the commission, through some misapprehension, might set a rate that was too low."

"I doubt it. They did that once. In a gas rate case against a combination gas and electric company that was getting all its profit out of its electric business, they reduced the gas rate by mistake and had to raise it within six months. They won't get caught in that fix again."

For awhile the manager considered the prospect, but finally rejected it completely.

"No, I don't dare! If anything should happen, and I hadn't taken every conceivable precaution to prevent it, where would I stand with my board of directors? I just can't take the risk."

So every conceivable precaution was taken. The office force slaved month after month, nights, holidays, and vacations, to feed the demands of the city. It spent thousands of dollars measuring houses to try the effect of an area rate; it accumulated bushels of statistics, up to the time of the election. Then the incumbent lost out, and his successor, having no need for such advertising, let the case slide to an innocuous close.

There is no moral to the incident: the manager might have done differently and fared worse. For that matter there is no moral that can be drawn safely from any single part of the maze of data on rate cases that has grown up during the past thirty years.

Adequate treatment of that accumulated material must await the super-scientist who can range beyond micro-

scope and cultures to envisage mass-phenomena in terms of some law or biologic urge. But even a bystander who views a segment of regulation may find stray fragments at times aligning into sequence, or catch in odd moments the glimmering of an idea. One of these is that it may be a mere pleasantry to blame public utility experts for whatever is amiss.

Ideally considered public utility experts may be deficient, but from a practical or relative point of view, the fact that some of them seem tinged with commercialism may only indicate that they have achieved the standing of one part of our noblest profession—the part identified with the tale of two surgeons:

"What did you operate on Jenks for?"

"Two hundred guineas."

"I mean, what did he *have*?"

"Why, two hundred guineas."

Time Marches On!

Remarks of Senator George W. Norris of Nebraska from Congressional Record *of February 14, 1928:*

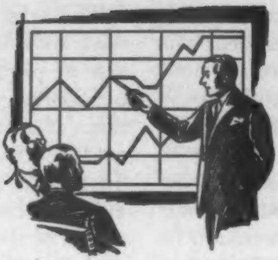
Mr. President, it is quite evident, I think, that an investigation of utility corporations is going to take place either by a committee of the Senate, as provided for in the resolution of the Senator from Montana (Mr. Walsh), or by the Federal Trade Commission if the amendment of the Senator from Georgia (Mr. George) shall prevail. I think it can be demonstrated very readily that if the investigation shall be attempted by the Federal Trade Commission the result will be in the most important particulars practically negligible. . . .

Mr. President, it seems to me it is a practical question. Either we want an investigation or we do not. If we want to have an investigation, let us vote for the resolution that will bring it about. If we do not want an investigation, let us vote it down or vote for the amendment which kills it. It looks perfectly clear to me. I am not finding fault with the man who says, "We do not need to have any investigation; we do not want any." He has a right to do that. It is a question with two sides. I concede it. I would not question his honesty, or his wish, or anything of that kind; but we are either going to have an investigation or not; and, as I think I have now demonstrated, as a matter of law, if the so-called George amendment is agreed to, we will get no investigation. We might just as well face that.

Excerpt from The New York Times, *March 4, 1938:*

If a resolution (to investigate TVA) is reported, Senator Norris may be expected to try to substitute his proposal. In this he might very well have administration support. Speaking of Dr. Morgan's plan for a joint congressional body, Senator Norris said:

"You would get fellows on the committee who would be regarded as partisan, not because they were dishonest, but because they are terribly divided on the TVA. The obviously fair way to investigate the TVA is to have the Federal Trade Commission do it."



Why Not TVA Rates?

A yardstick which, in the opinion of the author, should be applied to municipal as well as to private plants—a novel suggestion for the solution of the power problem.

By RILEY E. ELGEN
CHAIRMAN, DISTRICT OF COLUMBIA PUBLIC UTILITIES COMMISSION

The electric power industry opposes the methods in use by the Tennessee Valley Authority to achieve the results which both are seeking, that is, the increased consumption of power. There the similarity aims diverge widely. Of course, where there are stockholders, partners, or individuals engaged in industry there must be a profit motive. At least the business must support itself. On the other hand, where the government engages in similar activities its primary interest is that the enterprise be self-supporting and that the original outlay be returned either to the General Tax Fund or bondholders and that the burden, if there be such, rests upon those served. There ought not to be any profit motive in a government-conducted industry. If there be profit in a publicly owned utility it belongs to those from whom it was collected and should be returned to them either by discounts given on future bills or by an appropriate and timely reduction in the rates charged. It should certainly not be used to build golf links, air ports, and the like.

So we find ourselves in a situation which can be described succinctly in this manner: We all want more people to use power and more power to be used by the people who are customers, so that production plants may be run continuously as near to capacity as possible, in order that the greatest use may be made of all power facilities, because in this way power may be delivered to all of us at the minimum cost to the power plant and, in consequence, rates may thus become the lowest attainable.

That is what the Tennessee Valley Authority seeks to achieve; that is what the power companies are and have been for years trying to attain. That is what we all desire whether we belong to the private or public ownership groups or whether we just don't care a hang who serves us as long as we are well and economically served.

You won't find any considerable number of responsible citizens who will disagree with the expressed aims of the Tennessee Valley Authority in respect to the relief of drudgery by the introduction of cheaper electricity in the homes of those who cannot now afford it, or the increased use of power and light in agricultural communities.

You won't find many thoughtful men and women, unbiased by selfish interest, who would maintain the view that where the government builds dams for navigation, flood control, recreation, or otherwise it should not utilize the waste water, spilled off the top of that so stored up, to the benefit of the taxpayers. And no matter where you live, as long as you are alive you are a taxpayer, whether you know it or not. To fail to use for the benefit of the public (the taxpayers) the power inherent in this falling waste water would and ought to be condemned as the rankest sort of government inefficiency and inexcusable waste of public property. There is not much difference of opinion on the matter of the proper utilization of waste water from navigation, flood control, recreation, reclamation, and other meritorious projects involving the construction of dams, reservoirs, lakes, and what not, for the storage of water. The difference of opinion arises not in the methods by which falling water is converted into electric current, but rather it is concerned only with the manner in which power so generated is ultimately disposed of and to whom.

As far as the private power interests are concerned they would not say nearly so much as they do; in fact, they might remain relatively quiescent, if the government agreed to turn this falling waste water over to them for the conversion into power at an agreed rate of pay; nor would they seriously oppose the government turning over to them at a fair price the power generated by it from the falling waste water. In fact, if the government agreed to either of these two propositions there would be much less opposition to Federal dam construction than at present, even though the government built dams solely for power purposes and for no other purpose.

So this power problem when reduced to its lowest terms is not about navigation, flood control, recreational lakes, conservation, reclamation, or other meritorious public undertakings. Then what is it all about? What do the headlines mean? Why have all these tons—train loads would be better—of white paper been used up during the short life of the unhappy Tennessee Valley Authority? The answer to those questions is the electric word "distribution"; that's what it is all about. In other words, the private power interests want to do all the retailing of power; they don't want the government to fix the rates at which the customers, particularly the residential customers, are to be billed for the current generated and sold by the Tennessee Valley Authority. The government believes that if current is sold to such retail customers far below the present level of private rates, it will yield a reasonable return on the capital which has been prudently invested to create the power facilities.

On the other hand, if any considerable block of the power interests could be convinced that their properties would earn a reasonable return on that

which they have invested in the operating plants now serving the public, this power performance would be relegated to a mere side show in the great life drama in which it has been said that every man is an actor.

Of course, if private utilities were willing to serve the public at rates and conditions of service set up as standards, or as a "yardstick" by the Tennessee Valley Authority, then obviously it would be unnecessary for it to continue to demonstrate that which had been proven.

On the other hand, the private utilities are not concerned, or if they are they should not be disturbed over the rates charged for power; it matters little whether they sell it at 20 cents or at only 2 cents per kilowatt hour. What they are most interested in is the profit derived from the operation of their businesses. . . . So if it can be demonstrated that they can make a reasonable profit by the sale of power at TVA rates, or within a short range of them, the power industry ought to do so.

Why not start their own private TVA's, conducted experimentally in different sections of the country, accounting for their operations in accordance with approved accounting practices established by the Federal Power Commission; selecting, say Columbus, Ohio; Ft. Wayne, Indiana; Lincoln, Nebraska; Seattle, Washington; Los Angeles, California; and other places where the public is served by both municipal and private plants. Then both the private and public interests would have an opportunity to observe the accomplishments. The annual reports of such municipalities would quickly demonstrate the wisdom of the course pursued and would serve as a check upon the reports of the private utilities serving the same communities.

In so far as Tennessee Valley Authority rates are concerned they are not, after all, the lowest in the country by a long shot. Others had lower rates in effect long before TVA was thought of. Take Virginia, Minnesota, a city of 12,000 people, for instance. The top rate of their city-owned plant is 2 cents against 5 cents for the TVA and you can get up to 200 kilowatt hours at a rate of 2 cents each for residential customers.[1] That is from 14 to 60 per cent below TVA, depending upon your monthly consumption. The Virginia, Minnesota, municipal plant pays its way; it is not a burden on the taxpayers; it contributes to the General Tax Fund amounts greater than taxes a private utility would pay and it finances the needs of its growing plant without

[1] The figures here and in subsequent parts of this article are from the Federal Power Commission-published reports of Rate Surveys.

¶ "In *view of the fact that there appears to be less uniformity in rates, for the same quantity of power, among municipally owned plants than those privately owned, and in view of the unwholesome rate structures of many of the publicly owned plants, it would appear that all the managers of all these publicly owned plants should be assembled and asked to adopt the TVA rates.*"

burden to the general taxpayers. Other publicly owned plants also sell electricity to their customers at rates in some brackets as low as or lower than those established by the Tennessee Valley Authority.

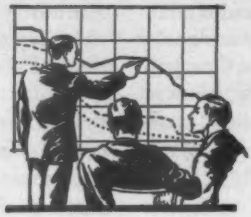
All these localities made a sufficient amount above expenses of operation to finance needed improvements and to pay into the general fund of the municipalities sums which were greater than the taxes a private company might be expected to pay. In fact, they might easily have reduced their rates still lower without impairing their ability to finance their needs. In other words, it has been demonstrated that publicly owned plants can serve their customers at rates lower than TVA rates without loss or operating deficit.

Now a study of the published facts concerning the rates at which residential customers are served in this country discloses that there are about 1,750 publicly owned plants serving communities consisting of only a hundred or so people in some instances up to and including Los Angeles, Cal., with one and one-quarter million people. Such a study shows that when the rates are classified in accordance with the different population grouping of cities to which they apply, there is a rather definite downward trend from rates in villages of less than 1,000 population, where the highest average prevails, to cities of over 50,000 population in which the average rates are the least. This condition is observed in both private and public plants and for varying sizes (in kilowatt hours) of monthly bills. The 1,750 municipal plants were thus classified into 11 different population groupings and it was observed that the lowest rates in each grouping were either equal to or lower than those of the Tennessee Valley Authority.

Into these same graphic representations or pictures of the municipal power situation were introduced the rates at which power and light are sold to residential customers by the private plant serving the District of Columbia under the "Washington Plan" or so-called sliding-scale regulation. It is observed that there is not a great amount of difference between monthly bills of the same number of kilowatt hours whether paid for at the lowest rates prevailing in publicly owned plants, the Tennessee Valley Authority, or those made by the private plant in accordance with the Washington Plan of regulation.

In point of fact the lowest rates for different size monthly bills of these municipalities, the Tennessee Valley Authority and the Washington Plan rates all fall into a very narrow band from one-quarter of a cent to one-half cent in width. A rather negligible difference when we consider that the variation between the highest and lowest rates in each of the population groupings of the cities is from a high of 22 cents per kilowatt hour to a low of 2 cents each for the same number of kilowatt hours.

Now the private company serving the District of Columbia and operating under the Washington Plan of regulation is possibly one of the most prosperous in this country, enjoying a financial standing permitting it to sell bonds almost as advantageously as does the Federal government. Even under adverse economic conditions



The TVA Yardstick

"THERE *are . . . examples of financially successful operation of private utilities at rates established by the municipal plants . . . Therefore, a serious study of the past and present rates of plants operating in competition with each other leads to the conclusion that the private companies could prosper at and ought to adopt rate schedules as near as may be to those of the Tennessee Valley Authority, and all municipal plants should also do so as an example to the private companies."*

such bonds, bearing the lowest rates of interest of any utility, find a ready market at par among trust companies, insurance companies, and institutions seeking safe investments for trust funds. There are other prosperous private companies the residential rates of which are not much higher than those in the District; there are others which have slightly lower rates, particularly in the case of the larger customers, and they too are financially sound.

FROM what has gone before, it has been shown that the TVA rates are not necessarily unremunerative in that even lower rates were and are in effect in successfully operated municipally owned plants and that some financially sound private plants are serving their customers at rates not greatly different from those of the Tennessee Valley Authority, in so far as the great bulk of the customers are concerned. It would, therefore, seem quite appropriate to suggest that it would be advantageous to the electric power industry, their customers, and security owners, for those private concerns that serve the 25,500 communities not served by the 1,750 publicly owned plants to adopt rates which would achieve the ends sought by those who find little of conviction in the arguments in support of rates higher than those in the District of Columbia and in the other cities referred to. Of course, there are quite definite reasons why rates cannot be the same in all communities and the revenue from each municipality, village, town, or rural line should support the service rendered and not be a burden on any other group of power users. However, there is no good reason for the wide variation in rates at which monthly bills for the same quantity of cur-

rent are rendered in different communities of the same size and characteristics. That criticism applies equally to private and public plants. One publicly owned plant sells 25 kilowatt hours for $5.50 while another in the same population group charges $1.25 for exactly the same quantity.

In view of the fact that there appears to be less uniformity in rates, for the same quantity of power, among municipally owned plants than those privately owned, and in view of the unwholesome rate structures of many of the publicly owned plants, it would appear that all the managers of all these publicly owned plants should be assembled and asked to adopt the TVA rates. Of course, such an action on the part of these public plants would achieve the very ends sought by those who would start additional Tennessee Valley Authorities in different parts of the country. As we have at least 1,750 publicly owned plants, why not try to persuade those municipalities to adopt the TVA rates and at once spread the meritorious projects into every corner of the land? The adoption of such rates by Los Angeles, Cleveland, Seattle, Columbus, Kansas City, Tacoma, Ft. Wayne, Lincoln, and the other eight cities of over 50,000 population served by publicly owned plants, would produce quite a profound effect on this power problem. Of course, as long as such plants sell power at prices not greatly different from those of private industry you cannot anticipate that the latter group will be greatly disturbed.

It is going to be most difficult to persuade the private utilities to lower their rates in the interest of those principles underlying the Tennessee Valley Authority philosophy, however laudable they may be, as long as any sizable slice of these municipalities continues levels of rates in effect which yield profits from which "18-hole golf courses" and the like are built instead of utilizing such profits to reduce the rates to eliminate drudgery and make current available to the under-privileged.

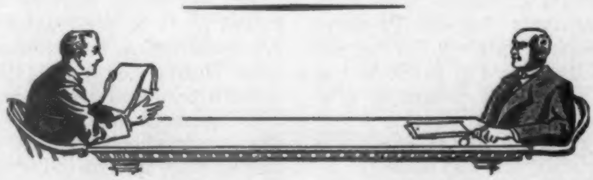
If the 875 publicly owned plants that sell power at rates far above the remainder were to reduce their rates to the level of the average of the population groups to which they belong, a most decisive turning point would be reached in this controversy. These publicly owned plants have no uniformity in their rates even in the same state. In some states the rates of publicly owned plants are consistently lower than those in private plants while in others they are the highest in all instances.

Just a couple of extremes will serve to illustrate the conditions described. As an illustration of a municipality with exceedingly low rates, Virginia, Minnesota, has been referred to. Obviously no one outside of the communities has a right to mention the municipalities having exceptionally high rates; but there is the city of "X" with a population of 16,000 people, not far from the Tennessee Valley Authority territory, which has a municipal plant which charges such unheard-of rates as 17.53 cents per kilowatt hour for 15 kilowatt hours, 15.52 cents for 25, 14.38 cents for 40, 7 cents for 100 kilowatt hours, etc. There is a municipal plant serving a city of 18,554 people which charges 13 cents per kilowatt

hour for all current up to 50 kilowatt hours and 6.67 cents each for 100 kilowatt hours. When these ridiculously high rates are contrasted with 3 cents for up to 50 kilowatt hours on the Tennessee Valley Authority and 2.50 cents for 100 kilowatt hours, the picture thus presented doesn't make sense, particularly when both the private companies in this same state and the Tennessee Valley Authority are selling power far under the municipal rates.

THERE is no question but that the publication on the part of the Federal Power Commission of existing electric rates in all communities has been a revelation to many and has had the effect of causing numerous rate reductions by both public and private plants.

Pitiless publicity can accomplish much more. Now when private utilities consider—and they should consider most seriously—the matter of adopting schedules of rates as near as possible to those advocated by the Tennessee Valley Authority, they should remember that private companies operate successfully in competition with public plants in many localities, notably among which are Lincoln, Nebraska; Columbus, Ohio; Ft. Wayne, Indiana; Los Angeles, California; Seattle, Washington; and Cleveland, Ohio. There are many other examples of financially successful operation of private utilities at rates established by the municipal plants. In fact the rate schedules of some of those private companies mentioned are in certain respects much lower than those of the public plants. Therefore, a serious study of the past and present rates of plants operating in competition with each other leads to the conclusion that the private companies could prosper at and ought to adopt rate schedules as near as may be to those of the Tennessee Valley Authority, and all municipal plants should also do so as an example to the private companies.



Why Investors Hesitate

"Too many believe, and too much has been done to make them believe, that the industrial system, as we understand it today, is being permitted to exist as a more or less temporary expedient—tolerated, I may say. Hence, that it is to be substantially altered or perhaps superseded. The spirit of industrial enterprise, which has contributed so much to our progress of the past, must be reëstablished on a firm foundation by demonstrated fact and understanding as to objectives and methods before American industry can go forward with confidence—nothing else will do.

"Until that time, men will not invest their savings and risk their property, neither will they do those other things so essential in stimulating the expansion of industry along the broad front necessary to effectively promote our national economy."

—ALFRED P. SLOAN, JR.

Keeping Up with Uncle Sam

By FRANCIS X. WELCH

It takes a long time for news about the recent "Big Business" conversations at the White House to leak out. Even so, it's only hearsay because it is definitely *lesè majestè* for one who is invited to these conferences to permit himself to be quoted directly.

The unprinted rules are that the President himself will attend to any post conference statements that are to be made to the press. And he usually does—invariably to the effect that much progress was made and everybody went away happy.

This is not to suggest that any of the big moguls carried on the way some of the more effervescent little fellows recently did in Dan Roper's auditorium, but there are stories going about that the President was told a thing or two which may have surprised him. And one of these stories had to do with the strange case of the gas industry.

You are aware, of course, from reading the newspapers that the President asked the electric industry for an explanation of its failure to participate in the recent short-lived industrial construction boom. The explanation he received was generally to the effect that Federal power projects had made the investing public sour on the electrical industry. Result: the industry could not raise junior money for expansion purposes—aside from the operating uncertainty of actual competition (in certain sections) from the government.

The President may or may not have thought this was a substantial reason for the lag in electric power construction. His subsequent remarks belittling the extent of possible Federal competition with the private power industry indicate that he was at least sensitive to the implied responsibility of his administration.

But does the same reasoning apply to the gas industry? Maybe not, but the story goes that the President happened to inquire about new gas construction from one of the utility leaders whose company interests included some gas properties. (At this writing the President had not conferred with any gas industrial leader as such.)

On the surface, gas construction statistics tell an interesting story:

Back in 1929 the electrical industry spent about \$850,000,000 for new construction. During that same year the combined natural and manufactured gas industry spent about \$232,000,000. Came the depression, and during the low year of 1933 electric construction had dropped to a mere 15 per cent of the 1929 figure. Construction by the gas industry (combined) had tumbled almost as much—to 19 per cent of the 1929 figure.

During 1936 electric construction picked up to 33 per cent of 1929, while gas construction had climbed to 43 per cent. During last year (1937) electric construction went over 50 per cent of the 1929 figure. While final 1937 figures on gas construction were not available at this writing, the gas industry, from preliminary reports, did not do very much better, for all this talk about the power industry being the biggest laggard of our industrial group outside of housing.

It was only natural that President Roosevelt should wonder what was wrong. The industry sold more gas last year than it ever did in its history. Profits were fair and the market is still promising, in view of the still large portion of the field (especially domestic) unsaturated. Then why didn't the gas industry get up and go ahead with new construction? What was holding it? What is it

towing? Surely it didn't have the same excuse that the power companies had—the threat of Federal competition and all that sort of thing!

Well, what the President heard was a caution, if the story this writer heard is even remotely accurate. First of all, he was told that the commercial prospects of the gas industry are adversely affected to quite a degree by the Federal power program, and particularly by the large amount of official ballyhoo that goes along with it.

The TVA, the REA, the FPC, the Bonneville Administrator, and until recently the PWA, have all been busy as beavers making America power conscious. Do this with electricity, do that with electricity, do everything with electricity. Speeches are made in Congress on the great benefits of electricity as the A No. 1 servant of mankind and are reprinted and sent frank free all over the United States.

The private electric industry at least gets left-handed benefits from this barrage of free publicity for electricity. Electric companies are selling more domestic electricity than ever and will continue to do so in areas not affected by Federal projects.

But where does the gas industry head in? It has to pay regular rates for its advertisement, and it isn't carried in the news columns either, like the speeches of the Hon. John E. Rankin. It's all very well to point to the fact that gas sales are doing nicely just at present, because just at present the Federal plants haven't as yet swung into active operation to amount to anything. It's the outlook that annoys the gas men, who are frankly competing with electricity on many points in the commercial, domestic, and industrial fields. And subsidized electric rates and subsidized municipal electric plant building do not brighten the picture.

And that's not all by a long shot. While the Federal government is beating down electric rates with both the sword and the plowshare at the same time, it seems to be doing everything to increase the operating expenses of the gas industry. On one side of Pennsylvania avenue the Bituminous Coal Commission is busy trying to increase the price of fuel so necessary for manufactured gas; on the other side of Pennsylvania avenue leaders are busy trying to raise labor prices, while in the legislatures throughout the land, the petroleum-natural gas industry is being held up as a favorable target for increased taxation. And if these added expenses drive the gas utilities to seek increased rates, as has already happened in Chicago, where is gas going to come out in its competition with the ever lowering electric rates?

Well, that is enough grief to paint for the gas industry, which would be as virile a business as we have in America today if it were let alone. The gas industry doesn't ask favors, but merely fair play. Electrical progress is one thing; subsidy is another. The whole point in this discussion is that the Federal power program cannot be dismissed as something that is disciplining a mere 13 per cent of the markets of a single industry against which the administration has an avowed grudge. There is the question of whether in the long run it may not adversely affect gas, petroleum, coal, and, indirectly, a number of other important industries which only ask that they be given the right of fair competition in their fight for business.

It is not to be inferred from the above that the gas industry is asleep at its oars in the race for recovery. On the contrary, only this month the industry entered into an intensive national program to stimulate construction and modernization of homes under the new National Housing Act—one of the New Deal laws helpful to business.

The industry is busy pushing appliances for a fare-thee-well which has a favorable reflection on the manufacturers. This is the gas industry's answer to the President's call for action on the part of private business. If the gas industry can put over this program, its own construction expansion will follow as a matter of course. All it asks is an even break.

Financial News and Comment

By OWEN ELY

Agreement on Standard Gas Plan

THE modified reorganization plan for Standard Gas & Electric has finally been accepted by the various protective committees and presented to the United States District Court at Wilmington, Delaware. President Lynch explained that, in order to meet the criticism of the committee representing the $4 preferred stock, the plan as presented to the court omitted the option to note and debenture holders which would have permitted them to accept new debenture 4½s plus certain stocks of subsidiaries (Philadelphia Company, San Diego Consolidated Gas & Electric Co., and Pacific Gas and Electric Co.).

The terms of this option agreement were prepared nearly a year ago, and the new method for reducing the company's funded debt ("to conform with existing conditions") will be determined by the directors following the court's confirmation of the plan as now constituted.

Another last minute change was the modification of the voting rights. Under the terms of the plan filed on November 24th, the utility's $4 preferred stock was allotted 1½ votes in cumulative voting with the common stock, thus giving the two classes of stock the right to elect six of the nine directors of the company. Under the new set-up, the $4 stock has the right, voting as a class, to elect two members to the board, while the common stock may elect four. The Standard Gas & Electric $6 and $7 preferred stocks, as a class, are to name two directors, and the note and debentures have the right to one representative on the board.

Under the present plan, no other changes will be made in the preferred or common stocks of the company, and control will still be held by Standard Power & Light Co. (an inactive corporation) which owns about one-half the outstanding common.

President Lynch also stated that as soon as the company is released from reorganization proceedings, it will file as a registered holding company. It is obvious that a great deal of financial spade work will be necessary at some future date if the entire system is to be brought into line with the "death sentence" requirements of the Utility Act.

Queens Borough Gas & Electric

THE public service commission of New York has ordered Queens Borough Gas & Electric Company to write off its books $3,744,220 paid in excess of the book value of the stocks of the Nassau & Suffolk Lighting Company and the Long Beach Gas Company, which were acquired in 1927. The company was given twenty days in which to file an answer to the commission's ruling.

It appears likely that the company will ask for a rehearing on the ground that conditions a decade ago were decidedly different than at present and that submission of additional evidence might put the matter in a different light. In 1927, Queens Borough and Nassau & Suffolk were strongly competing companies, engaged in litigation. Commissioner Van Namee pointed out in a minority decision that there were many outside factors affecting the purchase price.

The majority opinion held that the acquired stock of Nassau & Suffolk had a book value not over $18,000, as compared with the $3,420,000 paid by the Queens

Company. The Long Beach stock, for which $342,020 was paid, was considered worthless.

The opinion, written by Chairman Maltbie, held that it is obviously impossible for the company to write off all of the excess amount by decreasing the par value of its common stock. He recommended that $1,744,220 be taken out of surplus, that $1,000,000 (or more) be written off by decreasing the par value of the stock, and that the remaining $1,000,000 be amortized out of earnings over the next five years, at the rate of $200,000 a year. If it is impossible legally to reduce the par or stated value of the stock, $2,000,000 would have to be amortized out of earnings over an 8-year period, or $250,000 per annum.

It is possible that the company may ask the commission for a longer amortization period—such as fifteen or twenty years—which will make the draft on earnings less severe. However, they may prefer to appeal to the courts for a review of the entire question.

The Long Island Lighting system has been in the commission's bad graces for several years, due to long drawn out investigations of the system's financial and accounting history, rate structure, etc. In addition, rate cuts, increased taxes, and higher wage and other costs have caused a declining trend in earnings, partially offset by bond-refunding savings and operating economies.

The manufactured gas business of the Long Island system has suffered more than the electric, being more vulnerable to increased fuel costs, etc., in common with the trend of Brooklyn Union Gas and some other companies. Queens Borough Gas & Electric Company, which supplies electricity and gas to the Rockaway district of Queens Borough (New York city) and the South Shore district of Nassau county, has managed to cover its preferred dividend comfortably over the past four years, although net has dropped to about half the 1932 level. However, due to the pressure of higher costs (plus a rate cut), the dividend was cut in half early this year, following regular payments for over a decade. The preferred stock, currently selling over-the-counter around 38, yields about 7.9 per cent based on the present $3 dividend rate. Considering the upward trend of population in Queens and Nassau, plus the fact that the January 1st increase in bituminous coal costs has now been canceled, the current price of the stock would appear to have measurably discounted the company's recent difficulties. The write-off ordered by the public service commission is, after all, merely a matter of bookkeeping and may not greatly affect future dividend payments.

For the twelve months ended September 30, 1937, the company earned $543,031, or $8.12 per share on the preferred stock. Deducting the $200,000 proposed amortization would still have left about $5.15 a share compared with the present $3 dividend. (This, however, was before the full force of increased costs was felt.)

The subsidiary company, Nassau & Suffolk Lighting, is entirely a gas company, its gross amounting to about one-third of the parent company's. Possibly due to its lack of electric business, net income has dropped more sharply than that of Queens Borough. The company made a relatively good report for the twelve months ended September 30th, due to increased activity in the seaside resorts which it serves. In this period $5.21 a share was earned for the preferred stock—nearly double the previous year's earnings. Preferred dividends were reduced in 1935 (after an unbroken previous record) and were gradually cut to last year's $1.50 rate (a lump sum payment in December). Accumulated dividends now amount to about $17 a share. The stock is selling currently over-the-counter around 18 to yield about 8.4 per cent. While the yield is only a little higher than that of the parent company's preferred, the balance sheet position is much less favorable, Queens Borough having advanced a considerable amount to Nassau for working capital. Presumably the subsidiary will fund its current debts at some favorable opportunity,

but the present current position makes the dividend seem more vulnerable than that of the parent company—since the latter might decide to strengthen its own position by drawing cash from the subsidiary in repayment of its advances.

The Tax Burden

IN a recent issue of the FORTNIGHTLY, figures were presented to indicate that the utilities are paying out in taxes over 14 per cent of every dollar of revenue, while the railroads pay less than 7 per cent. It was indicated that the corresponding percentage for industrial companies was not available, but a recent compilation by the American Iron & Steel Institute for twenty-one steel companies in 1936 indicates that that industry paid out only 4.6 per cent of gross for taxes.

Thus, in relation to revenues it is obvious that the utilities' tax burden is about three times as great as that of the steel companies and twice as large as that of the railroads.

Other interesting facts about the $307,000,000 taxes paid by the industry are that they have grown one-half in the last five years and that the average domestic consumer now pays $5.12 in "hidden" taxes, compared with $1.12 in 1913. The utilities pay nearly four-fifths as much to various government units as to their own employees.

TVA—Streamlined Pork-barrel

FOLLOWING are excerpts from a radio address (in connection with the Forum Division of the WPA Adult Education) made by Dr. William L. Grossman, instructor in public utilities at the New York University School of Commerce:

> I have tried to indicate the reasons why the electric light and power industry is a particularly inappropriate field for government ownership. TVA has assured us that it could sell electricity more cheaply than the private companies and yet be able to pay for itself. If it kept this promise, and published facts to show that it kept it, socialists would have something to talk about.
>
> TVA in actual practice has made little effort to demonstrate that it is really self-supporting. It's a pretty safe bet that TVA does not and will not pay for itself. One of the chief costs of supplying TVA electricity is the interest on the money that the government had to borrow to build the electric facilities. But advocates of TVA say that it pays no interest, so why charge rates high enough to cover any interest? Of course, TVA as a separate legal entity pays no interest, but the government pays interest for it, and that means that you and I pay interest for it. This subsidy by government financing is only one of several which make it possible for TVA to charge low rates. Thus some of the municipalities which distribute TVA electric energy have constructed their plants with the help of PWA grants from the Federal government. Here, again, the taxpayer foots the bill.
>
> To conclude: A great deal of what is said about TVA can be verified or disproved only by a thorough investigation of TVA. The Federal Trade Commission, under congressional authority, made an 8-year investigation of the private electric utility companies. Isn't a bona fide inquiry into the inner workings of the great governmental electric utility company now in order? I rather think the results of such an investigation would convince both liberals and socialists that, in supporting TVA, they are simply promoting an ultra-modern type of political free lunch—in short, that the TVA electric power program is nothing but a streamlined pork-barrel.

FPC Views on Rates

FOR some years the Federal Power Commission has been compiling comprehensive statistics on rates charged by electric utilities. It has now called on all the electric utilities to report the changes in their annual revenues resulting from rate changes made from July 1, 1935, to the beginning of the present year. According to the commission, "receipt of these reports will permit, for the first time, a comprehensive compilation of the effects of rate changes on the income of companies or systems distributing and selling electric energy to customers of all classes in every state in the Union."

As of the same date, Commissioner Scott of the FPC, speaking before the National Lawyers Guild, stated:

FINANCIAL NEWS AND COMMENT

. . . if we are to achieve low public utility rates under our present system of regulation, four things are necessary: (1) effective regulation; (2) a simple and sound method of determining the rate base; (3) low cost of money (low rate of return); and (4) reduction in operating cost. Continuous, courageous, and informed regulation of the public utility monopoly is essential to the accomplishment of low rates. Quite often we hear of "voluntary rate reductions"; but those charged with the duty of regulating the industry know that such voluntary reductions are somewhat in the nature of shotgun weddings . . .

Most impartial students of public utility economics are prompt to declare that the method of basing just and reasonable rates on the legal fiction of "fair value" is a monstrous deception which must be abandoned . . . Unless we can find some short-cut method of valuing the service (and no such short-cut method has as yet been put forth convincingly), the prudent investment principle apparently offers the best means of escape from an outmoded and wholly inefficient doctrine. Relatively easy to apply and relatively exact in its results, the prudent investment basis "eliminates the guessing contest involved in the determination of

PRICES, EARNINGS, AND RATIOS FOR LEADING UTILITY STOCKS

	Current Price About	*Approx. Range 1937*	*Earned per Sh. 1937*	*Price-Earnings Ratio*	*Div. Paid 1937*	*Current Yield About*
Electric and Gas Systems						
American Gas & Electric	27	49–21	2.57	10.5	2.10	7.8
American Power & Light	5½	16–3	0.54(b)	10.2	...	...
American Water Works & Elec. ...	10	29–8	1.38(c)	7.3	.80	*
Boston Edison	122	160–115	8.86(c)	13.8	8.00	6.6
Columbia Gas & Electric	8	21–4½	0.57	14.0	.45	5.6
Commonwealth Edison	25	33–21	2.05(b)	12.2	1.56	6.3
Commonwealth & Southern	1½	4–1	0.18	8.4	...	...
Consolidated Edison, N. Y.	22	50–21	2.10E	10.5	2.00	9.1
Consolidated Gas of Baltimore	64	89–60	4.63	14.8	3.60	5.6
Detroit Edison	92	147–89	7.82	11.8	6.00	6.6
Electric Power & Light	10½	27–6	1.11(b)	9.5	...	...
Engineers Public Service	4½	18–3	0.75	6.0	...	...
Federal Light & Traction	10	29–7½	2.71	3.7	1.00	10.0
National Power & Light	7	15–5	1.33(b)	5.3	0.60	11.7
Niagara Hudson Power	8	17–4	.86(c)	9.3	0.40	5.0
North American	20	35–14	2.05(c)	9.7	1.60	8.0
Pacific Gas & Electric	26	38–22	2.82(d)	9.2	2.00	7.7
Public Service of New Jersey	32	53–30	2.61	12.2	2.60	8.1
Southern Calif. Edison	22	33–18	2.22	10.0	1.62½	7.4
Standard Gas & Electric	4	14–2½	D1.13(b)	...	...	...
United Gas Improvement	10½	14–4	1.05	10.0	1.00	9.5
United Light & Power "A"	2½	11–2	0.41(b)	6.1	...	...
Gas Companies						
American Light & Traction	12½	26–10	1.77(b)	7.1	1.45	11.6
Brooklyn Union Gas Co.	16	53–16	2.57	6.2	2.30	*
Lone Star Gas	8	14–5	1.14	7.0	0.60	7.5
Pacific Lighting	38	54–35	4.10	9.3	3.50	9.2
Peoples Gas Light & Coke	32	66–22	3.65	8.8	2.00	6.3
Telephone, Telegraph, and Cable						
American Tel. & Tel.	140	187–140	9.62	14.6	9.00	6.4
Western Union	27	84–22	3.18	8.5	2.25	8.4
Tractions						
Greyhound Corp.	10	17–7½	1.75E	5.7	1.30(a)	13.0

D—Deficit.
E—Estimated.
*Dividend not being currently paid.
(a) Including 50 cents paid in 5½ per cent preferred stock at par.
(b) Twelve months ended November 30th.
(c) Twelve months ended September 30th.
(d) Twelve months ended October 30th.

reproduction cost," consumes much less time, and therefore is less expensive, and is relatively permanent . . .

REFERRING to a low rate of return as a third factor in lowering rates, Mr. Scott pointed out that

> We are living in an age which is characterized by low cost of money. The cost of money varies with risk. Risk in turn varies with inflation. Inflation, no matter how devious its accomplishment, must be eliminated from the accounts and the securities based thereon must be retired. If it is necessary for a utility to go through a wringer to obtain this result, then there would seem to be no other recourse, for there is no place for water in the financial structure of a public utility.
>
> If the property accounts are honest and the financial structure sound, there is no reason why the securities of a successful public utility should not be gilt edged. The cost of money to such a utility will and should be low. Low yields and sound securities go together. Low yields, which mean low cost of money, will materially assist in accomplishing low rates. Low cost of money is, therefore, not only a possibility but a probability if inflation of accounts and securities is corrected and thereafter enjoined. The Federal government has done much in recent years to lower the cost of money. The insistence on the part of regulatory agencies that full advantage of this endeavor accrue to the utilities will aid measurably in the lowering of rates. That insistence may call for a little surgery, but if surgery be necessary, the sooner the operation is performed the better.

Reduction in operating costs, the fourth factor, necessitates, Mr. Scott said, elimination of the unreasonable expenses passed on to operating companies by holding company groups or their affiliated service organizations. He also held that

> Integration and coördination of facilities should aid in lowering the cost of operation by eliminating unnecessary stand-by or reserve plants. The Federal Power Commission is aware of its responsibility in aiding the proper coördination and integration of facilities of electric utilities, and progress in this direction is being made. It is hoped that such efforts will result in considerable savings in the operation cost of utilities which in turn will redound to the benefit of the consumer . . .
>
> If the methods and procedures outlined fail of their end, then the consuming and investing public will continue to be inadequately protected or they must take recourse in public ownership. Public ownership may take one or two courses: (1) the construction of municipal plants in competition with private utilities, such as we have in Cleveland, Ohio, and a few other places, or (2) complete public ownership by either city, state, or Federal government, or a combination of government agencies.

Commissioner Scott's various points are quite typical of the administration viewpoint. His address would have been more interesting and valuable, however, if he had described in detail (1) just how prudent investment eliminates all guesswork, if it involves "policing" of the accounts; (2) what means the Federal agencies have taken and are taking to assist utilities in taking advantage of low money rates; (3) to what extent the holding company service organizations make unreasonable charges to operating companies (many of these companies have now been mutualized); (4) a further explanation as to how the FPC proposes to coördinate facilities, eliminate unnecessary stand-by plants, and effect "considerable savings."

With regard to the commission's rate studies, while these are doubtless of value statistically, a comprehensive survey of the operation of the various profit-sharing plans adopted by utility companies, such as the Washington Plan which the commission could study at first hand, would seem to be of far greater interest and value to the utility industry.

FCC Report on A. T. & T.

FEARS that the FCC may issue a drastic report on American Telephone and Telegraph Co. were doubtless responsible for the recent drop in the company's stock from 150 to 128, from which it subsequently rebounded to 140 after it was learned that the report would be delayed a few weeks. According to a United Press dispatch to the *Journal of Commerce*, the preliminary draft of the report, embodying nearly thirty pages of recommendations to Congress, will require the company to base its rates on "prudent investment." (This should not

prove any hardship to Telephone, however, since the company's property accounts are thought to be conservative and largely based on original costs.)

According to the press story, Telephone's status as a "necessary monopoly" will probably not be disturbed, but measures to tighten up Federal regulation will be proposed. The report will also include the following, according to the *Journal of Commerce*:

> A special section, it was said, is devoted to the Western Electric Company, an A. T. & T. subsidiary, from which A. T. & T. operating companies purchase about 98 per cent of their equipment.
>
> The commission, it is known, has studied two ways of reaching Western Electric, one by recommending its divorcement from A. T. & T., and putting it into a competitive field, or regulation of Western Electric profits by requiring purchases through competitive bids.
>
> State utility commissions have complained that they cannot reach the Western Electric subsidiary, and that its prices are too high, leading to an excess valuation of A. T. & T. operating companies.
>
> It is understood the commission also may recommend:
>
> 1. Congressional action to regulate, and probably reduce, the charge made upon operating companies by A. T. & T. This is approximately 1.5 per cent of gross revenues, according to statements made at the hearings last year. The funds are for research purposes, to maintain A. T. & T. laboratories.
>
> 2. Revision of the system whereby long-distance tolls go entirely to one fund, instead of being allocated partly to local exchanges to handle the cost of long-distance service. This was criticized in the hearings on the grounds that local exchanges were, in effect, bearing a part of the cost of toll service without any recompense.
>
> 3. Possible suggestions that the pension plan should be revised to "level off" pension levels as between ordinary employees and executives.
>
> The report, as now drafted, is not final, but must be approved by the commission after which it will be transmitted to Congress.

Corporate News

GULF States Utilities of Texas (subsidiary of Engineers Public Service Company) is acquiring the securities and assets of Baton Rouge Electric Company and Louisiana Steam Generating Co. Gulf States will assume the $2,954,000 bonded debt of Baton Rouge; preferred stockholders will be offered a cash bonus, in addition to an even exchange for Gulf States preferred (unassenting stock to be redeemed). The bus properties will be taken over by a new company which will be owned by Engineers Public Service Company. These steps are part of a general program for simplifying the system set-up of Engineers Public Service Company, which recently registered under the Holding Company Act.

Thirteen units of the Consolidated Edison system have settled the litigation over the amount of their emergency relief taxes and have paid New York city $1,220,197.

Harley L. Clarke, former head of the $400,000,000 Utilities Power & Light Corp., was charged with fraud in a complicated $2,000,000 stock and loan transaction of the corporation and its subsidiaries and holding companies, in a memorandum issued recently by Federal Judge William H. Holly. Mr. Clarke has requested a hearing to present his side of the story. The incident has little significance except as indicating the continued difficulties and litigation confronting this system, despite the fact that it controls a very substantial sum of cash obtained from the sale of its English properties.

Interborough Rapid Transit continues to lose traffic to the Independent Subway, and the company's balance after rentals for the seven months ended January 31st was a deficit of $335,749 compared with a surplus of $469,666 in the same previous period. The company has been hailed into court on complaints about its service, but claims that it has no money to run additional trains.

United Light & Power Company and Engineers Public Service, together with the two large utility subsidiaries of Cities Service, have recently filed under the Utility Holding Company Act.

What Others Think

Recent Rounds in the Intra-TVA Battle

THE recurrent differences between Chairman A. E. Morgan and TVA Power Director David E. Lilienthal, which seem destined to make a congressional investigation of TVA almost inevitable, were sharply projected into the Washington spotlight by the recent letter written by Chairman Morgan and addressed to thirteen Senators and twenty-two Representatives, in which Dr. Morgan vigorously denied that his policy for public acquisition of power systems "is a surrender of public interest and is unduly favorable to the utilities."

Dr. Morgan said he had recently been asked for his views by many members of Congress and that he also wished to clear up some of the "confusion" on the general subject of public acquisition of private power systems. He is in a minority on the 3-man board of directors, since his policies generally are opposed by David E. Lilienthal and Harcourt A. Morgan.

Instead of reiterating his own views, Dr. Morgan let James D. Ross, administrator of the large new Bonneville power project, speak for him. After asserting that Mr. Ross' record showed none could accuse him of being "subservient" to the utilities, Dr. Morgan expressed complete agreement with the policies outlined by the Bonneville administrator.

Mr. Ross contended that private power systems should be acquired by public agencies through a process of negotiation based on "a dollar price for every real dollar of value." He said the value of a utility as a going concern must be taken into account and asserted that resorting to bitter competition between public and private systems often proved to be a very costly process for both.

The policies which Mr. Ross advocates for the territory served by the Bonneville project, it was indicated, probably will be followed in other western sections where new public power projects are being developed.

Mr. Ross, whose views were detailed in a letter two weeks ago to John R. Neal, utility official in Knoxville, also outlined steps to safeguard the investments of bondholders and stockholders. He asserted the entire holdings of a company should be taken over if possible when a sale is made, and cited his experience with such purchases when he was in charge of the municipal system at Seattle, Wash.

CONTRASTING with the general policy backed by Mr. Ross and Dr. Morgan is the program, favored by Mr. Lilienthal, and hence officially by the TVA, under which the TVA stands ready to go into widespread competition with private systems, to purchase only portions of those systems, and to base purchase prices solely on "useful physical assets."

It is the Lilienthal theory that such steps are necessary to force down the rates of privately owned utilities. Moreover, Mr. Lilienthal has contended that the prices at which the utilities wish to sell their entire systems are based on "write-ups" in valuations.

Although both Mr. Lilienthal and Dr. Morgan frequently have taken their arguments to President Roosevelt, the Chief Executive thus far has shown no inclination to force a settlement of the controversy. Several bills are pending in Congress for an investigation of the entire TVA.

Dr. Morgan, in renewing the feud, enclosed Mr. Ross' letter in his own communication to the Congressmen. He

spoke highly of Mr. Ross' record, and added:

> As an unquestioned advocate and successful proponent of public power, who has personally experienced the enormous waste and the great bitterness which result from conflicts between public and private power systems, with duplication of facilities, he is in a position to speak with authority.
>
> The policy proposed and strongly recommended by Mr. Ross . . . is substantially identical with that which I have advocated for the TVA, so far as they cover the same ground, ever since the first month of its life, a policy which was then and is now opposed by the TVA director who, invariably supported by the third member of the board, dictated the power policy . . .
>
> The fact that Mr. Ross proposes a solution practically identical with that which I have advocated for four and a half years throws light on the steadily maintained propaganda to the effect that my position is a surrender of the public interest, and is unduly favorable to the utilities.

About the same day (February 16th) that Dr. Morgan's letter became public, Mr. Lilienthal made an address before the Women's Court and Civic Conference meeting in Milwaukee, Wis., in which he shed some light upon his own concept of the Federal government's place in the public power picture. First of all, Mr. Lilienthal emphasized his belief that electricity in this day and age cannot be dismissed as just another household commodity, the price of which is a negligible fraction of the domestic budget.

Answering the few-cents-a-day argument, Mr. Lilienthal said that electricity is a symbol of freedom—of a new way of living, just as a flag is a symbol of national ideals.

That being the case, Mr. Lilienthal believes it is the function of the government to "rebuild public control" over this important industry. He added:

> One principle we must understand, and the rest becomes detail. And that principle is simply this: Electricity is the people's business. The business of supplying electricity must be run by the servants of the community, whether they be private corporations or public officials, as the public's enterprise; otherwise the full social benefits that can flow from electricity will never come to us and to our children.
>
> You frequently hear people speak of "private utilities." Now of course there is no such thing; the term is "public utilities," whether the utility in question is operated by private persons or by public officials. When a community distributes electricity to its citizens, the government is not thereby engaging in private business, nor is the government thereby competing with private business. To talk about the service of electricity by a public agency as if it were an ordinary private enterprise like selling groceries or automobiles simply neglects the facts. The fact is that since the establishment of the republic, public utilities have been recognized in the constitutional law of our country as public and not private undertakings. The Supreme Court of the United States, in speaking of a public utility many years ago, said: "Though the corporation was private, its work was public, as much so as if it were constructed by the state." "Such a (public utility) corporation was created for public purposes. It performs a function of the state." Let me repeat: the supply of electricity is so essential to community welfare and our individual life that it must be treated as a public business.

Coming closer to the internal TVA conflict in policy (which he does not mention), Mr. Lilienthal, after noting instances of what he declared to be abuses of public trust by privately owned utility interests, said:

> How can we restore democratic control over electricity? No single measure can do the job. And certainly the ownership of all the electric utilities in the country by the government of the United States is not the answer. The only persons who would favor such a move would be those who feel that in that way holding company securities of uncertain value could be bailed out. Centralization of the electricity business in Washington is no more the answer than the present centralization in a business bureaucracy in New York and Chicago. No, the way to decentralize is to decentralize, and not merely change the form of centralization from a private government called a holding company, to the Federal government.

Coming at the time that it did, Mr. Lilienthal's statement might be construed as disapproving certain proposals that the Federal government should buy out the private utility interests in the TVA area. The proper function of the Federal government, Mr. Lilienthal described as follows:

Chicago Daily Tribune

HITTING THEM ALL

It is almost unthinkable that this power (incidental to navigation and flood control work) should not be made available, since with a relatively small additional investment of equipment it can be harnessed and put to work. And that is precisely what Congress has directed should be done. The economy of such a plan is apparent at once. If a dam is built for navigation alone, or flood control alone, or (as in the case of a private development) for power alone, the cost of securing navigation, flood control, and power is greater than if all three purposes can be served by a single structure, and the costs of the structure divided among the three or more services.

What is to be done with this vast potential supply of electric power: The policies governing the sale of that public property of electricity, as written into the TVA Act as amended in 1935, are comprehensive and have deep social and economic implications.

All the power not employed for strictly governmental purposes is to be sold, according to the statute, "in order to avoid the waste of water power," and the board is authorized "to transmit and market such power as in this act provided, and thereby,

so far as may be practical, to assist in liquidating the cost or aid in the maintenance of the projects of the Authority."

In other words, the first duty of the TVA board is to sell the power and use the revenues to help pay the operating costs and repay the investment in the project. But in securing these revenues, *the widest possible use of electricity,* particularly in homes and on farms, is *specifically* laid down as a policy to guide the Authority. Though the project must plan to support itself, the national policy is clearly one of maximum use, consistent with reasonable costs, not maximum financial returns.

Mr. Lilienthal further condemned some private utility interests for not taking earlier advantage of municipal proposals in the TVA area to buy out their facilities at what he believes would have been a fair price, thereby avoiding the necessity for duplicate construction and competition with and perhaps "dismemberment" of privately owned systems. He concluded:

No one wants uneconomic competition. No one wants the waste of duplicating facilities; no one wants two electric systems in a community where one will serve as well. But private monopoly has an obligation on its side to deal fairly with the community, to recognize the public nature of the enterprise in which it is engaged, to acknowledge that the public interest with respect to electricity is paramount.

COMPLETING recent utterances by public officials on the subject of TVA some mention should be made of the spirited attack on that agency on the floor of the Senate by Senator Bridges of New Hampshire. It seems that Senator Bridges looked through the TVA annual report to see how the yardstick rate was getting along, and discovered that the Authority was selling the great bulk of its power "not to the forgotten man but to great corporations." Senator Bridges listed the names of the corporations and some details of the contract under which they obtain wholesale power from TVA. He continued:

Under these contracts the TVA pledged to these industrial corporations not less than 91,000 kilowatts of firm power. The TVA has been going now for four years, and in the electrical field its purpose was to serve municipalities and coöperatives. Yet at the end of four years its load for municipalities and coöperatives is only 23,000 kilowatts of power, while it pledges four times that amount by private contracts with four favored corporations. Do Senators know what 91,000 kilowatts of firm power actually represent? Just multiply 91,000 times 24 times 365, and you get the figure 797,160,000 kilowatt hours, which is more than enough to light every street light in the United States, run every street car, every interurban car, and every electrified railroad a full month.

These contracts cover more than a disposal of firm power. I have not even mentioned the secondary power which is pledged under these contracts, but there is such power to the extent of 120,000 additional kilowatts.

Secondary power, so-called run-of-the-stream power, need be made available only 300 days out of 365. Ordinarily, therefore, secondary power is not something on which a purchaser can count as he can on firm power. But it may well be that the situation is different here. For if the TVA continues to build its facilities, as it has in the past four years, far ahead of its municipal and coöperative load, this secondary power may well be available practically all the time.

Therefore, not only has the TVA pledged to four corporations four times as much firm power as it is now providing to the plain people, the municipalities and coöperatives in the area, the forgotten men, but there is the excellent possibility that these four companies may be able to count on getting annually from the TVA 1,750,000,000 kilowatt hours of energy—no small amount—since this is more energy than is produced by all private and public utilities in any one of 30 states.

SENATOR Bridges recalled that the theory behind the government's entrance into the light and power business was that residential rates charged by utilities had been too high and that private citizens had been exploited. He wondered whether the legislators who sponsored the TVA realized just what was actually going on. He said:

Of what use is a yardstick in the industrial side of the business of the utilities? Arguments in its favor do not exist. Utility companies cannot possibly exploit industrial clients. Utility companies have no monopoly in selling power for industrial purposes. They face a competitive situation continually, because industries which are adequately financed can, if they object to the rates offered by a utility company, resort to building their own power plants. There are thousands of such in the United States today. Each one of the three industrial corpora-

tions with which the TVA has signed contracts was fully able, if it could not get satisfactory rates from the utility companies, to provide its own energy by building its own power plant. As I have stated, utility companies cannot possibly exploit industrial clients, TVA or no TVA. Therefore, if there is to be exploitation, it is to be at the expense of the consumer of small quantities of power, the small storekeeper, the farmer, and the housewife, the ones who need heat and light. They are the people who are exploited; they are the ones for whom the yardstick was supposed to be set up; they are the ones who are forgotten today.

Senator Bridges compared the TVA wholesale rates with the power rates available to large manufacturing concerns in various low rate industrial cities, including Tacoma, Buffalo, Cleveland, Los Angeles, Pittsburgh, Detroit, Chicago, and so forth, and suggested that TVA might have an unfair bargaining advantage in inducing industrial concerns to migrate from other sections of the country. He alleged that these TVA contracts with private wholesale customers were not open to public bidding and wondered whether the action of the board was unanimous or whether Dr. Morgan had dissented in this as he had in other respects. The Senator did not blame manufacturing concerns now for availing themselves of TVA power. But he questioned whether it was the intent of Congress that the taxpayer should, in effect, subsidize their benefits. He charged that TVA accounting was incomplete and wondered whether similar alleged irregularities would develop "when and if other regional power authorities are created."

Senator Bridges concluded that TVA had too much power—in the administrative sense—and suggested that it might well be made subject to the review of the Federal Power Commission and Congress; and that in any event a thorough investigation of TVA affairs by Congress is presently needed.

ELECTRICITY: THE PEOPLE'S BUSINESS. Address of David E. Lilienthal before the Women's Court and Civic Conference, Hotel Astor, Milwaukee, Wisconsin. February 16, 1938.

HAS THE TVA BETRAYED ITS TRUST? Speech by Senator H. Styles Bridges in the U. S. Senate. January 18, 1938.

How Much Has the Federal Government Invested In Public Ownership of Power?

UNLESS some unforeseen influence completely changes the direction of the present administration policy, the Public Works Administration expenditures in behalf of public ownership of public utility properties are now a closed chapter of the New Deal. This is the result of President Roosevelt's determination to end Federal loan-grants for new local public works. Of course, those projects which are already under way, or which have heretofore been held in abeyance by reason of court injunctions, will be completed.

However, the PWA has very little money left over and above what will be required to carry out transactions for which allotments have already been made. This situation is likely to prevail, notwithstanding the likelihood of increasing unemployment brought on by the Roosevelt recession. Probably the relatively high cost of making work through the construction of public works, as compared with work relief *a la* WPA, has something to do with the administration's present attitude, although the activities of the WPA itself are also undergoing curtailment.

Such being the case, the present is an opportune time for evaluating the extent to which the Federal government, through the PWA, has gone in financing local public utility plants, and this was the gist of a recent study published as a supplement to one of the weekly Wash-

FEDERAL GOVERNMENT FINANCIAL SUPPORT OF LOCAL (NON-FEDERAL) PUBLICLY OWNED ELECTRIC SYSTEMS

1933-1937

			REA Loans		PWA Loans & Grants		Total	
Rank: Population	States	Rank: Federal Aid	Number of Recipients	Amount	Number of Recipients	Amount	Number of Recipients	Amount
15	Alabama	16	6	$1,616,000	9	$2,303,726	15	$3,919,726
43	Arizona	42	2	178,000	1	22,500	3	200,500
25	Arkansas	23	9	1,790,000*	1	190,000	10	1,980,000
6	California	6	3	1,483,000[1]	9	8,004,795	12	9,487,795
33	Colorado	31	4	740,000	1	23,500	5	763,500
29	Connecticut	48	0	......	1	450[4]	1	450
47	Delaware	38	1	405,000	1	33,500	2	438,500
31	Florida	27	2	213,000*	10	783,127	12	996,127
14	Georgia	19	27	3,146,115*	9	101,464	36	3,247,579
42	Idaho	25	3	970,750	2	399,445	5	1,370,195
3	Illinois	14	7	2,687,000[1]	12	1,364,363	19	4,051,363
11	Indiana	9	20	5,776,439	13	401,519	33	6,177,958
19	Iowa	12	28	5,570,328[3]*	8	256,018	36	5,826,346
24	Kansas	22	8	1,506,651	17	603,725	25	2,110,376
17	Kentucky	20	13	2,533,700	3	259,750	16	2,793,450
22	Louisiana	28	3	905,000	1	15,000[4]	4	920,000
35	Maine	43	1	70,000	1	102,600	2	172,600
28	Maryland	41	1	215,000[1]	0	......	1	215,000
8	Massachusetts	44	0	......	3	105,375	3	105,375
7	Michigan	10	8	3,953,000[2]	10	2,028,320	18	5,981,320
18	Minnesota	8	28	6,102,954[1]	14	814,024	42	6,916,978
23	Mississippi	26	8	1,082,700	4	283,080	12	1,365,780
10	Missouri	18	12	2,437,500*	14	1,378,870	26	3,816,370
39	Montana	30	8	859,600*	1	17,200	9	876,800
32	Nebraska	1	15	5,100,700	16	53,273,472	31	58,374,172
48	Nevada	29	1	178,000	2	712,909	3	890,909
41	New Hampshire	46	0	......	2	5,575	2	5,575
9	New Jersey	34	2	245,000	2	322,500	4	567,500
44	New Mexico	39	1	260,000[1]	0	......	1	260,000
1	New York	24	0	......	6	1,725,726	6	1,725,726
12	North Carolina	15	8	1,283,250[1]*	5	2,742,500	13	4,025,750
38	North Dakota	36	2	516,200	1	600	3	516,800
4	Ohio	7	19	5,975,800	13	2,631,347	32	8,607,147
21	Oklahoma	2	7	2,073,000*	9	20,464,413	16	22,537,413
34	Oregon	37	4	417,000[1]*	1	68,636[4]	5	485,636
2	Pennsylvania	21	7	2,356,450[1]	6	318,514	13	2,674,964
37	Rhode Island	40	0	......	5	247,700[4]	5	247,700
26	South Carolina	5	4	1,008,328	2	8,852,000	6	9,860,328
36	South Dakota	33	3	527,000	3	94,600	6	621,600
16	Tennessee	4	9	1,620,958	13	11,486,612	22	13,107,570
5	Texas	3	20	4,051,500*	16	16,040,659	36	20,092,159
40	Utah	45	0	......	3	60,658	3	60,658
45	Vermont	47	0	......	1	3,600	1	3,600
20	Virginia	17	8	2,034,800[3]*	5	1,860,054	13	3,894,854
30	Washington	13	7	1,073,200*	5	3,205,169	12	4,278,369
27	West Virginia	35	2	538,000[2]	1	900[4]	3	538,900
13	Wisconsin	11	19	5,639,500[1]	4	190,010	23	5,829,510
47	Wyoming	32	6	658,000[1]	0	......	6	658,000
	Totals		346	$79,798,423	266	$143,800,505[5]	612	$223,598,928

* Includes loans to privately owned utilities (16 loans aggregating $2,017,066).
[1] Includes 1 generating plant.
[2] Includes 2 generating plants.
[3] Includes 3 generating plants (20 generating plants, loans aggregating $2,760,000).
[4] Not public utility (for institution).
[5] Includes 54 loans and grants to hospitals and other publicly owned institutions, aggregating $2,404,762.

TOTAL FEDERAL EXPENDITURES (ULTIMATE) AND ALLOTMENTS (PRESENT)

Tennessee Valley Authority	$505,000,000
Other Federal projects	789,528,000
Rural Electrification Administration	79,798,423
Public Works Administration	143,800,505
Total	$1,518,126,928

ington letters of *P. U. R. Executive Information Service.* Of course, the whole picture of Federal activity in the power field (government sponsorship of other types of utility public ownership being virtually inconsequential except for municipal waterworks) embraces not only the indirect approach to public ownership through the stimulation of municipal plants with Federal loan-grants, but also the direct and more widely publicized Federal activity in building projects such as Bonneville, Grand Coulee, TVA, etc. And there is a third angle when we consider the activities of the Rural Electrification Administration, which will, presumably, continue on through the eight remaining years of its statutory life.

Summarizing this picture, *P.U.R. Executive Information Service* gives the above table.

It is this $143,800,505 spent in the power field by the Public Works Administration and the $79,798,423 spent by the REA, however, that *P.U.R. Executive Information Service* broke down into a valuable table of local detail which is herewith reproduced on page 363 with permission of the editor of the letter service.

It is interesting to note that of the grand total of nearly $250,000,000 apportioned by the PWA and REA, more than one-fourth (26 per cent) went to power districts, rural coöperatives, and municipalities in the state of Nebraska, which ranks 32nd in population among the 48 states. Allotments to the three states of Nebraska, Texas (5th in population), and Oklahoma (21st in population) accounted for 45 per cent of the total.

Practically all of the REA loans have been made to rural electric coöperatives —quasi public agencies; all of the PWA allotments were made to states, districts, and municipalities. The REA loans, incidentally, include $2,760,000 for the construction of 20 generating plants. Aside from outright gifts of approximately $50,000,000 included in PWA allotments, the investments by this agency and by the REA are ostensibly self-liquidating. Proposals have also been made for amortization of the allocated power cost of Federal projects, but, other than for Boulder dam and the Bureau of Reclamation, no policy has been fixed.

FEDERAL INVESTMENT IN POWER PROJECTS. Supplement to *P.U.R. Executive Information Service* Weekly Letter No. 214. Washington, D. C. February 4, 1938.

Two Recent Books of Utility Interest

"THE Revolution in Economics," a recent booklet by Professor Robert S. Hale, is provocative to the point of being almost exasperating. He takes a great deal of trouble to show that experts, as well as laymen, habitually use such terms as "monopoly," "competition," "coöperatives," etc., when they don't mean the same thing—indeed when they don't know what they mean and, therefore, can't know what they're talking about. Professor Hale proves this point

The Providence Journal

LOOK OUT!

so thoroughly that we almost expected some surefire remedy, but he lets it go as just an impossible dialectic mess and ventures a pious wish that folks would be more careful in their definitions, so as to avoid so much futile argument at cross purposes.

If one can go through this rather puzzling beginning, however, a constructive, simple thesis emerges clearly through the second half of the book. In a word, it is Dr. Hale's zealous advocacy of a modern industrial application of Bentham's law of the greatest good to the greatest number in fixing prices. Hale would literally construe this as the greatest benefit to (1) the investor, (2) the consumer, and (3) the industrial employee. Applied to electrical rates (utilities bear most of Hale's theoretical illustrations), this would minimize the importance of how many rate base concepts can dance on the point of a needle, because a rate base would be shoved into the background by the overshadowing importance of the social consequences (in their triple aspect) of the rate itself.

Dr. Hale flirts with the ghost of the Blue Eagle without actually blessing a universal system of planned industrial monopoly (or competition by gentleman's agreement). He skips gingerly over the eternal intrusion of ideology's ugly head by polite intimation that if price economics were rightfully solved, political forms would tend to become of

relatively less importance. In other words, the body politic has an economic task to do, and the kind of clothes it wears on the job is hardly the problem of primary importance. This does not stay the author from making an effective comparison between the communistic system and a penitentiary.

Dr. Hale's book should be of especial interest to students of utility regulation because Dr. Hale obviously thinks in terms of utility regulation, even in discussing general industrial problems. Incidentally, the author derives such an amazing amount of important social implications from Lewis Carroll's "Alice in Wonderland," that this reviewer kept wondering what kind of a dramatic review Dr. Hale himself would write of "Snow White and the Seven Dwarfs."

THE subject of depreciation has been called, with some justification, the "shell game of regulation." Notwithstanding seemingly exhaustive literature, confusion of thought, and conflict of policy which attend the application of the principles of public utility depreciation, rivaling all the classical quarreling that has plagued rate valuation as a whole, in his recently published monograph entitled "Principles of Public-Utility Depreciation," Perry Mason, of the faculty of Antioch College, has attempted to qualify the underlying issues and point out a way to a sound solution of the depreciation problem.

For the foreword of this little book we have the word of none other than Professor I. L. Sharfman of the University of Michigan (noted for his own monumental work on the history and functions of the Interstate Commerce Commission).

Professor Mason analyzes the general principles of depreciation in a way that is critical as well as expository, and "while there is no disposition to gloss over difficulties, avoid technical problems, merge distinctive issues in sweeping generalizations, or shrink from the formulation of definite conclusions, prime emphasis is placed upon the fundamental nature of depreciation, carefully probed from all significant angles, the practical circumstances which surround its determination, and the necessities of consistent and workable procedures."

Mr. W. C. Mullendore, executive vice president of the Southern California Edison Company, also commends Mr. Mason's effort as a "remarkably well-written treatise" on the subject.

The book is divided into three main sections, the first developing the "principles of depreciation, basic facts, accounting problems, financial aspects, etc. The second is a résumé and analysis of "commission regulation of public utility depreciation," while the third section deals with depreciation in the courts and stresses the attitude of the Supreme Court, as well as the lower tribunals, on various phases of the subject.

Specifically, Mr. Mason recommends a cost basis of determining depreciation and a straight-line method of apportionment. Besides an index, the book has an excellent bibliography of citations and depreciation decisions classified according to states and years.

—F. X. W.

THE REVOLUTION IN ECONOMICS. By Robert S. Hale. Published by Bruce Humphries, Inc., Boston, Mass. Price $2.00.

PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION. By Perry Mason. American Accounting Association. 1937.

Publications Received

ECONOMICS. By Henry O. Loebell. A discussion of the present situation of the gas industry. *Gas Age*. January 20, 1938.

REGULATING LABOR UNIONS. By Lisbeth Parrott. *Survey Graphic*. February, 1938.

The British trade disputes act, often quoted—and misquoted—by American exponents of strict regulation of labor unions, interpreted in the light of British labor's experience during the ten years since its enactment after the General Strike.

The March of Events

TVA Inquiry Asked

A THOROUGH investigation of the Tennessee Valley Authority by a joint committee of the House and Senate was demanded on March 2nd by Dr. Arthur E. Morgan, chairman, as the long-standing breach between him and the other two members of the board, Harcourt A. Morgan, and David E. Lilienthal, reached a point where healing appeared utterly impossible, it was said.

This newest manifestation of the feud in the TVA directorate was precipitated by the decision of a Federal commission in Knoxville, Tenn., on March 1st, denying the claims of U. S. Senator George L. Berry and his associates for marble properties allegedly destroyed by the Authority's Norris dam. Dr. Morgan, it was reported, took the commission's decision as a complete vindication of the stand he took at the outset, in which he was not supported by his associates, that the Berry claims were nothing short of an attempt to exploit the government.

Dr. Morgan contended that the Berry case represented the kind of difficulty with which, as chairman of the TVA board, he had been faced in the effort "to maintain good standards of public service." He expressed a fear that the whole TVA program, in which he claimed a firm belief, was jeopardized by this sort of business. He said:

"The real difficulty has been in the effort to secure honesty, openness, decency, and fairness in government. The Berry marble case is an instance of this difficulty."

Dr. Morgan's demand for a joint congressional inquiry found two measures already pending seeking investigations. One by Senator Norris, would have the Federal Trade Commission undertake the task, the other, by Representative May of Kentucky, proposed a House committee.

Dr. Morgan maintained that it would take a joint committee to give adequate representation to all important attitudes toward the TVA.

President Roosevelt on March 4th made public a statement by Harcourt A. Morgan and David E. Lilienthal, asserting they could no longer work with Dr. Morgan, and suggesting his resignation.

The demand for Morgan's resignation was contained in a memorandum to the President on January 18th. It charged Dr. Morgan had sought by unethical methods to "obstruct and subvert" decisions of the majority of the board. It charged him with pursuing a policy of "rule or ruin" in TVA administration. The board majority suggested Dr. Morgan relinquish his position on the board if he found it impossible to coöperate with the majority.

The statement said there could be "no possible objection to a public official retiring to private life and standing up as a private citizen to contest and seek to upset a policy with which he has disagreed as a public officer." It continued:

"If, however, he remains as an executive officer of an agency with the decisions on which he is out of sympathy an obligation rests upon him not to use his vantage point as an executive to obstruct the carrying out of determined policies."

President Roosevelt authorized publication of the statement when asked at a press conference concerning Dr. Morgan's demand for a thorough investigation of TVA. Following publication of the statement, Chairman Arthur E. Morgan indicated that he would not resign as his two TVA colleagues suggested.

The coincidental release on March 6th by Messrs. Lilienthal and H. A. Morgan of tentative negotiations for the purchase of privately owned power facilities in the TVA area to the extent of $50,000,000 was viewed in some quarters as a concession by the majority of the TVA directors to demands that the TVA modify its previous seeming policy of destructive competition. News of the purchase plan was generally favorably received in private utility circles.

"White Paper" Tabled

A WHITE paper tabled in the Canadian House of Commons on February 28th revealed that on January 27th of this year Premier Mackenzie King had sought the coöperation of the United States government for an international treaty which would approve Premier Hepburn's plan to divert 1,200 cubic feet per second into the Great Lakes-St. Lawrence watershed from the Kenogami river.

The paper contained the Dominion government's correspondence and documents in connection with the St. Lawrence Deep Waterway Treaty of 1932, the Niagara Convention of 1929, and Ogoki river and Kenogami river projects.

Utilities Appeal Decision

CHARGING that they were not given a "fair and impartial trial" in their recently dismissed suit attacking the constitutionality of the TVA, 18 private power companies appealed the decision to the Supreme Court in a voluminous petition filed in the U. S. District Court at Knoxville on February 24th.

Unfair discriminations against the power companies, it was claimed in the appeal, were made by the three Federal judges in the court procedure which they adopted at the trial held recently in Chattanooga. Detailed descriptions of the alleged improper court proceedings, which included claims the TVA was trying to drive the power companies out of existence, and that the judges refused to allow the power companies' attorneys to present rebuttal testimony, were contained in a 60-page, typewritten assignment of errors in the appeal petition.

Included in the claim of errors in the trial procedure was the charge that the court erred in failing to find the TVA unconstitutional and its program primarily one of power production. The assignment further charged that the 9-foot navigation channel and flood control program which the TVA claims as its primary objectives, should cost only $75,000,000, according to Army Engineer surveys, while the TVA program actually was costing in excess of $575,000,000.

U. S. Circuit Judge Florence E. Allen, of Cincinnati, who was the presiding judge at the hearing, signed the order allowing the appeal.

TVA Widens Service

THE Tennessee Valley Authority added four municipalities on February 23rd to its potential power customers by approval of contracts with Clarksville, Etowah, and Lewisburg, Tenn., and Albertville, Ala.

Final approval of the contracts gave the authority a total of 30 municipalities and 18 electric coöperative associations which have contracted for the purchase of wholesale surplus power.

The authority already is serving more than 35,000 customers in 18 municipalities and 16 coöperatives in Tennessee, Georgia, Mississippi, and Alabama.

Bill to Tax Radio Broadcast Units

A BILL to tax radio broadcasting stations, with resultant additional revenues estimated at $5,000,000 to $7,000,000 annually, is to be considered at an early date by a House Ways and Means subcommittee, according to a recent report.

The measure was introduced by Representative John J. Boylan of New York and was said to be supported in principle by Frank R. McNinch, chairman of the Federal Communications Commission. Mr. McNinch recently expressed the opinion that it was "inevitable" that the broadcasting companies in time would have to pay a tax, and he pointed out that their income was almost pure profit. He said he believed there should be some appropriate legislation for taxation of the authorized broadcasting stations, and that he was favorable to some sort of tax.

The Boylan bill would except stations operated by the Federal government, states, territories, or possessions of the United States, or any political subdivisions, and those used exclusively for nonprofit purposes.

Utilities Boom

U. S. Senator Copeland told the Senate on February 22nd that the utility industry was prepared to spend $4,000,000,000 on expansion and replacements if "proper encouragement" were given by the government. He said:

"Think what that would mean in the way of employment. Not only employment now to take up the slack, but more than that. The enlargement of facilities which would mean greater employment in these institutions in the future and therefore the hope of continuance of a prosperity which might be begun in that way."

Senator Copeland, who was speaking on the Relief Bill, said:

"If there could be some assurance that legitimate business properly regulated would be uninterfered with, we would not need this money. If we could have that assurance, we would have prosperity and that almost immediately."

He said leaders of the electrical industry had told him the time was ripe for an "amazing" expansion if business confidence could be restored.

Effect of Rates on Revenues

AN important step to show the effect of lower electric rates on the revenues of utility companies, which may offer strong support for the administration's thesis that utilities benefit from the increased use of electricity resulting from reduced charges, has been taken by the Federal Power Commission.

The commission announced on February 20th that it had undertaken the first inventory of earnings of both private and public electric utility companies with a view to showing what result lower rate schedules have had on annual revenues. It has asked for reports from the companies. Clyde L. Seavey, acting chairman of the commission, said:

"Receipts of these reports will permit, for the first time, a comprehensive compilation of the effects, throughout the United States, of rate changes on the income of companies or systems distributing and selling electric energy to customers of all classes. As these rate changes, in the large majority of cases, have

been reductions, these reports will show particularly the estimated effect of lower rates on the revenues."

Canadian Radio Fight Expected

ABOLITION of the principle of public ownership of radio stations, provided for in the Canadian Broadcasting Act of 1936, is being sought by some members of the Conservative party, it was reported last month. Several Conservatives were said to be engineering an attack upon the whole question of nationalization of radio in Canada, and would probably thresh it out first in the Parliamentary Committee which was to be set. The fight was expected later to go into Parliament.

The Conservatives, it was said, want to establish the American system, or something very close to it. The Canadian Broadcasting Act of 1936, the object of the Conservatives' attack, has far-reaching powers regarding the establishment and maintenance of public stations, and regarding control of private stations. The CBC already operates its own stations, and was said to be building others.

Arkansas

Five-cent Phone Rate for Hotels

THE Southwestern Bell Telephone Company was ordered by the state utilities commission on February 21st to effect rate schedule changes calculated to save hotels in Arkansas approximately $7,727 annually in telephone bills.

Rates on telephones in hotel rooms were ordered to be reduced a total of $9,906 a year. Rates on PBX switchboards were ordered increased $7,957 annually. The rates on trunk circuits connecting the hotel switchboards with the central station were reduced $5,788.

Hotel patrons will benefit an indeterminate amount as the result of the commission's order, which limits to 5 cents the amount a hotel may charge for local calls and specified that no additional charge other than the regular toll rates should be charged for long-distance calls placed from hotel rooms. Many hotels have been charging 10 cents for local calls.

The order directed the company to file new tariffs including the reductions not later than March 15th.

The order also directed that an arrangement under which the telephone company allows hotels a 10 per cent commission on all long-distance calls placed from hotels should be continued.

Rate Cut Possible

ELECTRIC current rates in Forrest City could be reduced 37 per cent and still leave adequate receipts to operate and maintain the plant and to pay all direct obligations, such as outstanding bonds, a Consumer Committee reported last month to taxpayers and consumers of the municipally owned city water and light plant.

The committee announced also that the reduction would allow, in addition, adequate funds to pay for all of the paving bonds issued by Districts Nos. 5 and 6, as well as the Works Progress Administration street project bonds. The committee pointed out that future receipts of the plant would receive the benefit of such increases of revenue as would result from rate reduction.

The findings of the committee were announced after several weeks of study. A petition for reduction in rates was presented to the city council early in January by a group of patrons.

Coin Telephones Decreed

COIN-BOX equipped telephones will be installed in fraternity houses and dormitories at the University of Arkansas, Fayetteville, as a result of efforts of house managers and President J. C. Futrall to obtain restrictions on long-distance telephone calls, the state utilities commission said recently.

A plan for installation of the new type service was worked out by the Southwestern Bell Telephone Company at the suggestion of the commission following a hearing at the state capital last month.

The houses will be allowed to subscribe to one-party line business telephone service with special coin-collecting device at a flat rate of $5.50 a month. Extension station service from these telephones without the coin-collecting device will be available for $1 additional each month. This service will not require the deposit of coins for local calls.

Restricted long-distance service was requested by the house managers and the university president because difficulty in keeping track of long-distance calls resulted in the fraternities having to pay heavy telephone charges incurred by their members.

Rural Power Boundaries Fixed

BOUNDARIES within which the Oklahoma Gas and Electric Company will be responsible for rural electrification development in portions of Sebastian, Franklin, Crawford, Logan, and Washington counties were defined in a state utilities commission order on February 14th.

Principal towns in the area, where the company already is operating, are Fort Smith,

Alma, Van Buren, Altus, Ozark, Lavoca, and Charleston. The boundaries were defined at the request of the company to prevent overlapping of areas for which the company is responsible and those for which certain rural electric coöperatives will be responsible.

Delaware

Utility Loses Suit

BONDHOLDERS of the Eastern Shore Public Service Company, and the company, lost on February 16th in an attempt to prevent the Seaford Power and Light Company from continuing operation in Seaford.

The state supreme court upheld an opinion by Chancellor Josiah O. Wolcott, dismissing a suit brought by the bondholders and the Eastern Shore Public Service Company. They charged fraud and conspiracy in an agreement between the Seaford council and the Seaford Light and Power under which the company operates a plant which the town eventually hopes to purchase.

Georgia

Hand-set Rates Adjusted

ELIMINATION of the extra charge for hand-set telephones installed more than ten months and a reduction in telephone costs to Georgia users from rate readjustments was announced on February 14th by the state public service commission.

The order provided that hand sets or French-type telephones will become standard equipment, without additional charge, after March 1, 1939. The charge is 15 cents a month. Users who subscribe for hand sets during the twelve months beginning March 1, 1938, will have the charge eliminated after March 1, 1939.

Chairman Walter McDonald announced after a conference with officials of the Southern Bell Telephone Company that "an annual saving of $114,000 to Georgia telephone users will result from rate readjustments." Rate changes, the commissioner said, affected charges for hand-set telephones, extension bells, gongs, and residential and business extension telephones.

Indiana

Rate Excesses Denied

DISMISSAL of a petition filed by fifty commercial users of natural gas in Ft. Wayne was sought in a general denial that Ft. Wayne rates are exorbitant, submitted last month to the state public service commission.

The denial, filed by the Northern Indiana Public Service Company, offered figures intended to show that diminishing revenues in a changeover from artificial to natural gas would not "yield more than a fair return on the fair value" of the utility's property and also contended they were "noncompensatory."

A petition filed last fall by commercial users in Ft. Wayne sought a rate reduction and an investigation by the commission of gas costs.

The company's revenue schedule said the January return from natural gas in Ft. Wayne was $75,990 as compared with $92,051 in January, 1937, when artificial gas was supplied consumers.

Kentucky

Phone Toll Rates Cut

THE state public service commission announced on February 21st a reduction, effective April 1st, in the intrastate message toll schedule of the Southern Bell Telephone Company amounting to $36,500 annually. Commissioner Cammack said:

"This is a reduction in the revenue of the Southern Bell Company and does not include reductions which will follow by the independent companies using that firm's lines. About 50 per cent of the reduction is in the overtime charges for person-to-person messages."

He added that the toll rate reduction was the result of informal conferences between the company and the commission and that it brought Southern Bell intrastate rates for Kentucky substantially in line with the firm's interstate rates.

Michigan

Protest Phone Rate Cut

THE Michigan Independent Telephone Association on February 18th filed with the state public utilities commission a petition protesting the voluntary reduction in intrastate toll rates made by the Michigan Bell Telephone Company. The independents claim such a reduction must of necessity be statewide and the independents will have to make similar reductions, which they cannot afford to do.

The petition said it had been the experience of other states that when intrastate toll rates are cut the exchange rates, or monthly service charges, have to be increased. The present exchange rates were described as "too low to meet the costs of operation."

The cut in toll rates will cost the independents about $90,000 in revenues, it was contended.

Mississippi

Urges Tax Favor

U. S. Representative John Rankin of Mississippi said in a statement on February 14th that he had appealed to Governor White and the state legislature to exempt nonprofit coöperative rural electrification systems from taxation.

Rankin said he understood such lines were exempted from taxation by provisions of a 1935 Mississippi statute, which, he added, had been repealed in 1936. Rankin declared:

"It seems to me to be utterly unjust to exempt from taxation new industrial enterprises that are operated for profit and then to impose a heavy tax on the farmers' rural power lines that are coöperatively owned and not operated for profit."

He said taxes were retarding development of rural lines.

Nebraska

Power Plan Investigated

MAYOR Kjar of Lexington stated recently that he and City Attorney Cook, Jr., at the direction of the city council, were investigating a proposal to purchase a municipal electric plant and power distribution system. He said a resolution was passed by the council expressing a desire to buy the Western Public Service Company system or install a new plant and distribution lines.

The council asked the mayor and city attorney to determine whether the proposition should be submitted to voters at a special election, or at the regular election this April. A copy of the resolution was forwarded to the private power company, the Platte valley public power and irrigation district, and the Central Nebraska (Tri-County) public power and irrigation district.

Asks New Trial

CONTENDING that the state supreme court erred in holding that the village of Deshler was estopped from challenging the franchise of the Southern Nebraska Power Company, and also in holding that the latter had any franchise rights, attorneys for the municipality asked that tribunal on February 15th for a rehearing. They said that perhaps they had failed to properly emphasize certain aspects of the case, with the result that an opinion had been handed down which violates the rights of village, which is unjust and inequitable, and which ignores well-established law.

The attorneys insisted there was no evidence in the record which proved that the power company ever acquired the rights of its predecessor, the Deshler Light & Power Company. They said that when the original company, a partnership of local men, was denied a franchise it went right ahead and built, and that no one has been able to explain how when a book of ordinances was later published it contained a franchise grant. The Deshler Light & Power Company succeeded the partnership. Since then the village has built its own plant, and operates it in competition.

Objection was also made to the finding of the court that the defendant operated for twenty years under the asumption that it had a franchise, and it was insisted there was no evidence to support the statement. The court had previously found the franchise void, but in this case held that the village was estopped at this late date from challenging its validity.

Offers to Purchase Utilities

NEBRASKA'S public hydroelectric districts took another step forward on February 17th in their proposal to acquire all of the state's private power companies. Acting on the

heels of a conference between officials of the three major districts earlier this week at Kearney, the Loup river public power district directors voted unanimously to submit offers to eight private power companies for their Nebraska holdings. The offers totaled $10,-221,791.

Although the Loup directors' action constituted a direct offer to buy any or all of the properties mentioned, it was understood the central Nebraska (Tri-County) and the Platte valley districts also may make offers and that the three may join in determining allocations among themselves of any properties they might thus acquire.

Platte valley directors declined to participate immediately with the Loop district in negotiating for the purchase of the eight firms, although Tri-County directors, meeting at Hastings, accepted the proposal readily.

Predicts Rate Cuts

GEORGE Johnson, chief engineer for the Central Nebraska public power and irrigation district, recently predicted rate reductions of as much as 20 per cent if the Federal Power Commission granted the application of the Southern Nebraska Power Company to sell its facilities to the district. Johnson testified at Washington before Carroll B. Spencer, examiner for the commission. Commissioner Claude L. Draper sat with the examiner.

The Southern Nebraska Power Company applied for authority to sell its three plants to the district for $898,000 cash. Johnson said the district would finance the purchase through Guy C. Myers of New York city, with whom, he said, a contract already had been made.

He said rate reductions would be possible, in his opinion, through operation of the district's new PWA-financed hydroelectric power plant at Hastings, Neb. He said the district would continue to operate the Southern Nebraska Company plant at Superior, but would use the company's plant at Clay Center and Oak only for stand-by service.

Johnson said the district intended to continue paying state and local taxes on the Southern Nebraska plants, although as a public agency its property is exempt from state and local taxation.

Rural Rates Set

RATES for users of rural power were announced last month by the Loup river public power district board. A portion of the transmission lines was expected to be in use by March 15th. The rates are as follows:

Schedule A, for motor load not in excess of 7½ horsepower: First 40 kilowatt hours or less, $3.50 per month; next 60 kilowatt hours, 4 cents per kilowatt hour; next 100 kilowatt hours, 2½ cents per kilowatt hour; over 200 kilowatt hours per month, 1¾ cents per kilowatt hour.

Schedule B, for commercial and small power service met by transformer having a capacity not to exceed 25 kva: First 40 kilowatt hours or less per month, $3.50; next 60 kilowatt hours, 4 cents per kilowatt hour; next 200 kilowatt hours, 2½ cents per kilowatt hour; next 200 kilowatt hours, 2 cents per kilowatt hour; over 500 kilowatt hours, 1¾ cents per kilowatt hour.

Schedule C, devised for churches and public buildings, offers a $2 per month rate for 25 kilowatt hours or less, the next 50 kilowatt hours at 4 cents per kilowatt hour, and over 75 kilowatt hours at 2½ cents per kilowatt hour. A minimum annual charge of $24 was established.

Customers will read their meters by a card system each month. If the bill is not paid within fifteen days of the due date, a 5 per cent penalty is charged.

Company Suggests Damages

THE state railway commission took under advisement on February 14th the application of the Lancaster county public power district for authority to construct 143 miles of rural electrification lines in the eastern part of the county, and is now seeking authority to start building in the eastern half. Of the mileage 59 miles are of heavy feeder lines, one of which leads to the Loup river power district substation northwest of Lincoln.

H. H. Wheeler, Jr., chief engineer of the Lincoln Telephone & Telegraph Company, told the commission that the proposed construction imposed severe penalties on the operation of rural lines. He said that an examination of the map showed 25 situations where the district will occupy locations now occupied by the telephone company and that to move across the road would cost the company $1,595. He said that to clear the way for three miles of construction where telephone companies now occupy both sides of the road would cost $490, and that to do away with noise that would result from other construction that will interfere with signaling and other operations involved another $687 of expense, without any betterments resulting to the service. He asked that any order issued would require reimbursement in the amounts stated.

Representatives of the Hickman Telephone Company withdrew objections when told that the company would pay for removal of pole lines necessary. It has a metallic system. Firth Telephone Company representatives said that if the company would pay for material for changing five miles of their system from grounded to metallic they would furnish the labor. The order will so state, it was said.

Nevada

Power Terms Drafted

NEVADA'S Colorado River Commission, of which Governor Kirman is chairman, recently announced terms under which it will approve proposed amendments to the Colorado river pact concerning sale and distribution of Boulder dam power and the allotment of power revenue to states.

Taking issue with proposals of southern California power purchasers, State Engineer Smith said the the Nevada delegation in Congress would be asked to advocate a $300,000 annual guaranty to Nevada and Arizona from power revenues, with payments starting July 1, 1937, and continuing for fifty years. The proposal, however, was said to be subject to ratification by the legislatures of the two states next year.

In the event the legislatures refuse to approve the proposal, the Nevada commission asked that the present law giving Nevada and Arizona each 18¾ per cent of net revenue from power operations be continued until 1945, when a minimum of $1,000,000 would be set aside for distribution among the states and Nevada and Arizona would each receive 18¾ per cent.

The commission also recommended that the rates paid for power by the states be the same as the rates paid by the southern California power interests, based on the average rate paid by contractors for firm and secondary power.

New Mexico

Asks Appropriation

U. S. Representative Thomason, Democrat of Texas, last month said he advocated before a House appropriations subcommittee a $500,000 appropriation to start installation of hydroelectric power generating equipment at Elephant Butte dam, in New Mexico.

Thomason and Representative Dempsey, Democrat of New Mexico, both expressed the opinion that such a provision in the Interior Department appropriation bill would be passed with little or no opposition in the House. The item has been approved by the Budget Bureau.

New York

Utilities Pay Relief Taxes

WILLIAM C. Chandler, corporation counsel, announced on February 25th that the 13 utility companies in the Consolidated Edison system had settled an involved emergency tax litigation with the city of New York by paying $1,220,197.22 as a compromise on deficiency assessments, in addition to other emergency taxes which the companies had already paid without protest.

The total asked by the city, which the companies disputed in court, was $1,580,961.15, levied under the city's utility tax of 3 per cent on gross earnings. Last year the tax was cut to one per cent, as the state government itself imposed a 2 per cent tax on utilities.

The period covered by the settlement runs from September 1, 1933, to August 31, 1934, and the assessments were made under provisions of the emergency taxing laws of 1933 and 1934.

Rural Electrification Program

RESULTS of the state public service commission study of the state's rural electrification program recently revealed that there remained to be built only about 4,500 miles of rural power lines on which revenue can be expected to justify such new construction, the public service commission reported to the legislature and Governor Lehman.

The report also pointed out that during the twelve months ended July 1, 1937, between 4,500 and 5,000 miles of rural line were constructed, the greatest number of rural extensions ever constructed in New York state in a 12-month period.

Some of the companies engaged in rural electrification programs have nearly covered the territory in which they have franchises, the commission said. The demand for service on the part of prospective customers in some of the unserved areas is very closely tied to the financial situation of the farmers concerned and the prices of milk and other farm products will be important factors in the advance of rural electrification in many of the remaining unserved areas, the commission said.

Rural extensions of electric lines last year in New York amounted to about 3,200 miles, against a record high of 3,800 miles in 1936. This additional construction brought the total lines in rural service to approximately 33,000

miles, according to the commission's report.

Lines built in 1937 added more than 12,000 new customers to the electric companies' systems, the report said, and 8,000 new customers were added to lines previously in existence. Of the 20,000 additional rural customers, 12,000 were farmers, bringing the total in the state to 87,000, or about 53 per cent of the occupied farms in the state.

The commission called attention to the fact that all of the rural electrification work engaged in was accomplished without use of Federal funds or resort to the Federal government, the companies having financed the work from their own income or by issuance of their own securities.

Power Hearing Ordered

THE Federal Power Commission recently resumed proceedings involving the Niagara Falls Power Company by ordering a hearing which was to have been held March 16th on a petition filed by the power authority of the state of New York.

The authority's petition, which was signed by its chairman, Frank P. Walsh, asked leave to intervene and become a party to proceedings before the commission on the application of the Niagara Falls Power Company for amendment of license to divert an additional 275 cubic feet per second of Niagara river water through its project No. 16 at Niagara Falls, N. Y.

Granting of the petition was opposed by the water power and control commission of the state of New York in an objection filed through New York's attorney general on January 26, 1938, and by the Niagara Falls Power Company. Both of these objectors were to be given opportunity to appear at the March 16th hearing.

Legal Fees

THE expenditure of $14,500,000 for legal fees and expenses in the six years from 1931 to 1936 inclusive by 232 reporting public utility companies in New York state was shown in a digest of their reports prepared by Samuel Cahan, assistant secretary of the state public service commission, made public on February 18th by Commissioners George R. Van Namee and Neal Brewster. Of this sum, the digest said "three or four utility systems in the metropolitan area paid more than $9,500,000 or approximately 65 per cent" of the total for the entire state of New York.

The digest was made public with a statement by Commissioners Van Namee and Brewster that they did not "wish to adopt the report" and did not approve of the manner in which the digest was presented. They were merely filing it, they said, so the public might have the information available. Enlarging upon this statement, Commissioner Van Namee said he and his colleague did not like to be placed in the position either of assailing or defending the large legal fees cited within the report. Mr. Van Namee pointed out that no information was available showing how much of the fees charged by counsel for the utilities had gone into opposing the state public service commission's efforts, and how much was for other services.

Radio Public Utility

STATE Senator John T. McCall has introduced a bill bringing radio broadcasting stations and radio corporations under provisions of state public service law. The bill went to the Public Service Committee last month. McCall said:

"Radio is a form of telephonic communication using electricity as motive power. It is under the meaning of term 'public utility.' All present radio stations would automatically receive franchises. All future franchises or certificates of convenience and necessity would be granted as are telephone franchises."

Gas Rate Cut

THE filing of a revised all-purpose general service gas rate by the Queens Borough Gas & Electric Company was announced on February 23rd by the state public service commission. The new rate will apply to territory including the fifth ward of Queens and the southwestern part of Nassau county.

Estimated to result in a net revenue deduction of $61,640 a year for the company, the new rates replace a schedule rejected by the commission recently. The new rate calls for a minimum monthly charge of 75 cents instead of the $1 minimum fixed in the disapproved schedule. The minimum rate covers 525 cubic feet of gas.

It was expected that under the new rate 71.5 per cent of the company's customers would receive smaller monthly bills, while the bills of 21 per cent would be increased.

North Dakota

Electric Rates Reduced

THE Fargo division of the Northern States Power Company last month was ordered by the state railroad commission to reduce power rates about $140,000 annually in electric revenue. The rate revision became effective March 5th.

The rate cut was the second approved in the last two years and resulted in combined reduction to electric consumers of approximately $262,000 annually.

The first case was settled by agreement April 11,1936, bringing a decrease in electric service revenue of about $122,000. A refund to consumers of $79,000 dating from May 1, 1935, also was approved at that time.

The present decision also provided for an increase in the steam rate revenue of approximately $27,000 annually. It was asserted that steam heat rates have been deficient for a number of years and that the new rates prescribed by the commission would yield sufficient income to pay all operating costs and a fair return upon investment of steam heat property.

Oregon

Utility Election

COUNTY Judge W. O. Vaughan on February 24th announced at Oregon City that the laws of the state would be followed in the special April 8th election on formation of a northwest Oregon Bonneville people's utility district.

This will be despite the fact that sponsors of the district stated they would "only be too glad to coöperate with the county courts and obtain volunteers where possible to act as judges and clerks, and arrange to get as many polling places as possible free."

Judge Vaughan declared that this was an important election, and the people should be given the right to vote according to law.

County Clerk Guy Pace announced that regular polling places and paid officials, a judge and two clerks, would be utilized at the special election on the power issue. Parts of Clackamas, Clatsop, Polk, Columbia, Washington, and Lincoln counties are included in the proposed power district.

Tennessee

Rate Clarification Asked

ELECTRIC utilities operating in Tennessee were called upon by the state utilities commission last month to adopt a uniform system for distinguishing between commercial and residential rates.

Utilities Commissioner Leon Jourolmon, Jr., said complaints were received from middle and east Tennessee that there was no official ruling as to whether boarding houses, tourist camps, apartments and combination store-dwelling buildings should be placed under the residential or commercial classification. He said the commission had requested the companies to work out a classification of as many different types of combinations as they have recorded and present them to the commission.

Jourolmon explained the commission would then take the matter under advisement and later issue a uniform definition of the rates that would clarify the issue.

Asks Power Grant

APPLICATION has been made by the city of Paris for the grant of 15 per cent of the approximate cost of construction of the proposed substation for distribution of TVA electric power in Paris. This will amount to $45,000 of the $135,000 which is to be a grant from the Public Works Administration.

Reese, Hart and Russell, engineers of Nashville, who were employed by the city in October, 1937, to draw plans for the erection of a substation and an electric distribution system for TVA, have agreed to the cancellation of the contract and will turn over to the city all plans and specifications for $3,750, payment for work to date, it was announced last month.

Texas

Phone Franchise Election Questioned

ALTHOUGH legal doubt was expressed as to the validity of an election on a 25-year franchise in Waco for the Southwestern Bell Telephone Company, ordered for April 5th, the election will be held. Question as to the legality of the election is based on a decision of the state supreme court in the case of McCutcheon *v.* Wozencraft, from Dallas county.

The election would decide whether the franchise, granted November 23rd by the city commission was approved by the people. In the Dallas case the court, according to the legal department of the Waco city government, held that no election may be ordered as to the

granting of the franchise, but that one may be requested before the ordinance becomes effective.

The petition for the election was filed in advance of the passage of the ordinance.

Pays Phone Franchise Tax

A CHECK for $152,400 representing 4 per cent of $3,810,003, gross receipts of the Southwestern Bell Telephone Company in Dallas for 1937, was paid into the city general fund last month in compliance with the concern's new franchise.

Last year the company paid the city $147,731 and this included approximately $4,000 for the percentage on toll calls which are not covered in provisions of the new franchise. A big increase in local business enabled the city's percentage still to show an increase.

In 1937 the company gained more than 4,000 stations, Clyde L. Stewart, division commercial superintendent, said recently, and at the close of the year there were approximately 86,000 connections in Dallas.

The telephone check brought the total of taxes collected since January 1st to $216,865, a tabulation showed.

Virginia

Plans Construction

NEW construction work throughout the Vepco system for the year 1938, recently approved by the board of directors of the Virginia Electric and Power Company, will amount to approximately $2,500,000.

Of this amount about $650,000 will be spent for improvements in power station equipment and in the rehabilitation of the electric transmission and distribution system of the company; $140,000 for rebuilding the high-tension transmission line between Richmond and Petersburg; $175,000 for rural line construction; $245,000 for new bus equipment for replacements throughout the system, and approximately $1,250,000 for miscellaneous line extensions to connect new customers.

Wisconsin

Launches Propaganda Investigation

THE first detailed investigation of Wisconsin utility propaganda—what it costs and how it is handled—was launched by the state commission on February 16th.

The commission issued a general order to all electric, telephone, gas, and water utilities in the state to answer under oath and return within thirty days a questionnaire it had prepared. There are 840 utilities under commission regulation.

The order provided for investigation not only of all utility advertising and publicity, but also of any memberships utilities hold in clubs, associations, civic and trade organizations.

Chairman Fred S. Hunt and Commissioners Robert A. Nixon and R. Floyd Green issued the order on the ground that advertising and publicity costs are charged to operating expenses, although some utility advertising and publicity expense may not be "properly chargeable" to operating costs.

Phone Utility Wins

BRANDED in scathing terms as biased and unfair in its procedure, the state public service commission on February 26th lost its prolonged fight in the Dane county circuit court to cut the rates of the Wisconsin Telephone Company.

In his decision, announced after two months' study of testimony and final arguments, Judge A. C. Hoppmann vacated the commission's temporary order of July 5, 1934, reducing the company's statewide exchange rates by 10 per cent and its final order of March 24, 1936, which directed a permanent reduction of 8 per cent annually. Both orders were held "unreasonable and unlawful" and the commission was permanently enjoined from enforcing them.

Judge Hoppmann filed separate decisions on the two orders, and in a third decision sustained the commission in an order issued April 30, 1935, prescribing depreciation rates to be used by the company and dismissing the utility's action to set aside the finding. The company claimed a depreciation rate of 4.53 per cent annually while the commission allowed 3.56.

In deciding the two rate cases, the court found the company's true rate base to be $51,000,000 instead of the $33,332,500 base used by the commission in the 1934 order and $35,000,000 allowed in its final order.

Unless the decision is reversed by the state supreme court, and if the Federal courts decide similarly in regard to temporary rate reduction orders issued in 1932 and 1933, the result will be a return to the company of some $4,780,275 so far set aside as a reserve account for refunds to company subscribers.

The Latest Utility Rulings

Control of Servicing Company By Operating Utilities

A JOINT application of Duquesne Light Company, Equitable Gas Company, and Pittsburgh Railways Company, all operating public utilities and subsidiaries of Philadelphia Company, for a certificate of public convenience evidencing the approval by the Pennsylvania commission of the acquisition from the parent company of all outstanding stock of Equitable Auto Company was denied. Equitable Auto Company is engaged principally in the business of renting motor vehicles and auxiliary equipment to, and servicing motor vehicles and auxiliary equipment for, these operating companies and the Pittsburgh Motor Coach Company.

The commission recognized the efficiency of a consolidated servicing system but expressed the opinion that economies effected should accrue wholly to the benefit of the ratepayers of the participating public utility. This, it was said, could be done only under the following conditions if a servicing company is to do the servicing:

> First, that the public utilities own, in proper proportions, all the capital stock of the servicing company; secondly, that the charges of the servicing company for services be fair and reasonable; thirdly, that the profits, if any, of the servicing company in excess of a fair return be distributed, in proper proportions, among the public utilities as refunds of overcharges for services; fourthly, that the public utilities credit such refunds to the operating-expense and the fixed-capital accounts to which payments for services were charged, or, if that is not practicable, to an appropriate operating revenue account; and fifthly, in the present case, that the automotive equipment which is used exclusively, or almost exclusively, by a particular utility be owned by that utility, and that the business of the servicing company be restricted to the maintenance, repair, and storage of such utility-owned equipment and to the ownership and rental of motor vehicles and related equipment used in common by two or more of the participating public utilities.

Objection was made by the commission to the exclusion of the Pittsburgh Motor Coach Company from the plan of acquisition. The coach company had been a patron of the servicing company in the past and was expected to continue in that rôle. It would, however, derive no benefit from the arrangement and any excess profit derived from it would not benefit bus riders.

The proposed consideration for acquisition of the stock was also criticized. The stock, having a par value of $450,000, had been purchased by the Philadelphia Company for $165,000. It was proposed to sell it for $315,000. Moreover, the Philadelphia Company had received "rich dividends" which were, in the words of the commission, "possible only through unconscionably high service charges levied on the public utility subsidiaries." *Re Duquesne Light Co. et al. (Application Docket No. 34474).*

Amount of Securities Must Not Exceed Value of Assets

AUTHORITY to issue no-par value common stock having a stated value of $11,500,000 to liquidate unsecured obligations to an affiliated company was denied by the Wisconsin commission where total securities outstanding amounted to $23,235,000 and the commission was satisfied that the value of the assets

would not exceed $30,000,000. It was said that the statutes contemplate that the amount of securities to be issued by any public service corporation shall not exceed the value of the company's assets. The commission continued:

> If the commission were to grant the prayer of this application, it would, in effect, be in the position of permitting innocent prospective purchasers to invest in securities of a corporation which the commission knows is grossly overcapitalized. (Dane County Circuit Court in Wisconsin Fuel & Light Co. *v.* Railroad Commission, decided August 5, 1927.)
>
> It is our opinion that the commission should embrace every opportunity that presents itself to eliminate overcapitalization by public service corporations operating in this state. This is especially true, as in the pending case, when the method employed in reducing or eliminating the overcapitalization does not affect the credit of the corporation or injure existing security holders. In the instant case, the findings by the commission will improve the financial structure, will benefit all existing security holders, and should improve the credit of the corporation.

The obligations to the affiliated company amounted to $16,987,831 and it was proposed to have $5,480,000 of the open account canceled upon issuance of the additional stock. The commission pointed out, however, that not more than $6,765,000 of additional common stock should be authorized and that not less than $10,222,000 of the unsecured obligations should be canceled.

A proposal to transfer an amount from capital surplus to create a depreciation reserve was also criticized. The commission said that depreciation reserves should not be created out of capital surplus until all available earned surplus has been used for the purpose, since depreciation expense is to be provided for through operations and a failure to provide enough depreciation results in showing too much earned surplus and a deficient depreciation reserve.

Additionally, the commission ruled that bond discount is not a part of the cost of property, but is an interest expense to be amortized out of the life of the bonds. Therefore, a proposal to retain an amount of bond discount in property investment and to write it off as the property is retired was disapproved.

The company proposed to place a stated value of $100 per share on the common stock outstanding and a different stated value, that is, $67.65 per share on the shares proposed to be issued.

This proposal was said to be unique in the history of security regulation, and the commission refused to depart from its long-established practice of determining the same value per share for all common stock of a given corporation outstanding and proposed to be outstanding. *Re Northern States Power Co. (2-SB97).*

Domestic Customers Entitled to Lower Rates Than Commercial Lighting Customers

A PETITION by a merchants' association asking that a power company be ordered to put into effect a commercial lighting rate not in excess of that charged to residential customers and that the company be ordered to put into effect a commercial lighting rate schedule which would not discriminate in favor of a few large commercial consumers was dismissed by the North Carolina commission. Residential consumers, it was ruled, are entitled to a lower rate than commercial lighting consumers, and a lower rate for succeeding blocks of energy than for the initial block had not been shown to be discriminatory.

The commercial lighting schedule, it was said, is primarily not comparable with the residential schedule because the residential rate covers lighting, heating, cooking, refrigeration, and power, while the commercial schedule is largely for lighting alone; separate and lower rates are available for commercial power and

heating service. The maximum demands of a large percentage of commercial lighting consumers occur regularly at the same time of day. On the other hand, the individual maximum demands of the residential users occur at widely different times. This low diversity between commercial loads, the commission pointed out, results in a less effective use of the company's facilities than obtains with residential service and is reflected in a greater proportionate cost.

The residential user's consumption of electrical energy was said to be more constant throughout the entire 24-hour period of the day than ever before, and the number of kilowatt hours used in proportion to the different kilowatt capacity was said to be relatively much greater than the commercial user.

It was said to be obvious that the residential consumer was entitled to a lower rate in view of the lower cost of service. The commission cited similar rulings by other state regulatory bodies as reported in *Public Utilities Reports,* and also cited the article by Richard J. Beamish of the Pennsylvania commission which appeared in the September 16th issue of the PUBLIC UTILITIES FORTNIGHTLY.

Associate Commissioner Hanft, in a concurring opinion, in discussing unfavorable load factor, said that the fact that this factor justifies a higher rate can be demonstrated by the following illustration, "oversimplified in order to make plain the principle":

> An electric company has only one customer, and that customer runs a motor by electricity ten hours a day. A second electric company has also only one customer who has a motor ten times as big which he runs by electricity only one hour a day. The two electric companies obviously sell exactly the same amount of current. Equally obviously the second company would have to maintain a plant ten times as powerful in order to sell exactly the same amount of current as the first plant. The rates of the second plant must therefore be higher than those of the first, and the second customer must pay more than the first. Since the commercial customers have a relatively large demand for a relatively small time each day they must expect to pay more for their current. Add the fact that this demand comes at the time of the company's peak load and it becomes plain that a higher charge to commercial customers is not discriminatory. Discrimination arises when differences in treatment are not founded on differences in circumstances.

North Carolina Merchants Asso. v. Duke Power Co.

Nature of Natural Gas Service to Lessor of Gas Field

COMPLAINT was made to the Pennsylvania commission that a gas and oil company was rendering natural gas service to the public in violation of the Public Service Company Law, now repealed, and that it had discontinued service to certain of its customers without first obtaining the approval of the public service commission. The newly created public utility commission, after considering the record before its predecessor, ordered discontinuance of unauthorized service and held that no authority from the commission was necessary for discontinuance of service furnished in violation of the law.

The service was furnished by the company to the owner of a tract of land which had been leased to the company for development. The lease contained this provision:

> While gas is being sold off these premises, said first party (lessor) may have gas free of cost for domestic purposes on said premises to the extent of 200,000 cubic feet per year, said first party to make the necessary connections and assume all risk in using said gas. The said second party shall not be liable for any shortage or failure in supply of gas for said domestic purposes caused by pumped gas from said premises or otherwise, and said second party shall have the right to all gas free of cost that can be saved from producing oil wells.

The company took the position that

the Public Service Company Law did not apply to the transaction because the company was not rendering utility service but was merely managing the gas owned by the land owner as its agent. The commission refused to agree with this contention, holding that the furnishing of gas under the terms of the lease was the furnishing of gas belonging to the company and therefore it was a public utility service. *Pennsylvania Public Utility Commission v. T. W. Phillips Gas & Oil Co. (Complaint Docket No. 11323).*

Appliance Purchase Agreement As Inducement To Extend Service

THE Wisconsin commission termed a company's practice with respect to the use of a rural service agreement discriminatory where the agreement provided that as an inducement to the company to extend service the customer agreed that within six months from the time service was first available he would purchase and use "at least the following appliances."

It appeared that a majority of the agreements did not contain the information for which the form called and that service was extended without it. The use of this so-called inducement in the agreement was said to be either misleading or discriminatory if some were required to give the information and others relieved of the necessity. *Re Wisconsin Power & Light Co. (2-U-1170).*

Ohio Commission Has Exclusive Jurisdiction over Electric Service to Transit Company

THE court of appeals of Montgomery county, Ohio, held that the public utility commission has plenary and exclusive jurisdiction of public utilities furnishing service to the public and full jurisdiction to hear and determine all complaints that any consumer may make against a utility touching the adequacy of the service and the justness of the charges made. Hence, a court of common pleas lacks jurisdiction to determine the rights of a transit company receiving electric service following the expiration of a contract.

The court held that it could not declare any rights under the contract since the contract had expired and there had been no renewal or supersession by another contract. The rights of the parties, it was pointed out, would be governed by the Public Utility Act. It was said:

> It is perfectly true that under the Public Utility Code, there is a contract upon the part of the defendant to furnish power to the plaintiff in accordance with its filed and approved schedule and likewise a contract upon the part of the plaintiff to pay for the same, but it could scarcely be asserted that, under the petition as framed, there is any right in the court to make a declaratory judgment as to the existence of such statutory contract or the rights of the parties thereunder. Such matters are exclusively within the jurisdiction of the Public Utility Act.

The Dayton Street Transit Co. v. The Dayton Power & Light Co.

Change from Flat to Meter Rate Basis

A PUBLIC utility company authorized to meter service to its customers when it so elects should not be permitted to make a change from flat rate to meter

rate service except in an orderly and reasonable manner, according to a ruling of the Pennsylvania commission. As a matter of practical expediency, in every instance of a continuing public service to be billed periodically, there should be a written service contract consisting of a written application for service, which application, when accepted and approved by the utility together with the applicable rates and rules in the tariff, would become the service contract. There should be a new written service contract embodying any proposed departure from the old contract.

Generally, it was said, meter rates are more equitable and more in the public interest than flat rates, but a company which has elected to change from flat rates to meter rates when customers are opposed to the change should serve written notice on the customers to the effect that flat rate service will not be available to them after a stated future date sufficiently in advance to permit them to arrange for such other service as may be available, and that meter rate service will be available and obtainable upon application to the company. On that stated future date the flat rate service would be discontinued and, if no application for meter rate service has been filed, the utility could disconnect all service. *Frank M. Beck et al. v. Portage Water Co. (Complaint Docket No. 11392).*

Status of Tennessee Valley Authority

The nature of the Tennessee Valley Authority was considered by the circuit court of appeals for the fifth circuit in a case involving a suit by an employee for injuries. Compensation under the United States Employees' Compensation Act was held to be the sole remedy to an injured employee. Circuit Judge Sibley, in discussing the status of this authority, made the statement which is quoted below:

> The Tennessee Valley Authority is a corporation created by Act of Congress, 48 Stat. 58, §1, 16 USCA §831, for the purpose of managing certain properties of the United States developed in consequence of the World War at Muscle Shoals, Ala., and of building further dams on the Tennessee river and its tributaries to improve navigation and control floods, and to dispose of surplus electricity generated thereby. There is no capital stock. The operations are paid for by appropriations from the Treasury of the United States. The lands acquired belong to the United States. The great functions of the Authority are governmental in nature and might have been performed directly by the officers of government. But a corporation consisting of three publicly appointed officials was created, and by §4(b) of the act, 16 USCA §831C(b), it was given power to sue and be sued in its corporate name. Notwithstanding the corporate entity and its subjection to suit, the Authority is plainly a governmental agency of the United States, and except as Congress may otherwise consent, is free from state regulation or control. McCulloch *v.* Maryland, 4 Wheat. 316, 4 L. ed. 579; Johnson *v.* Maryland, 254 U. S. 51, 41 S. Ct. 16, 65 L. ed. 126. It may be emphasized that it is not a corporation created under the general laws of some state or territory, whose stock the United States happens to own, as was true of the Emergency Fleet Corporation, and the Panama Railroad Company.

Posey v. Tennessee Valley Authority (93 F. (2d) 726).

Charter Provisions for Free Fire Protection Superseded by Regulatory Act

A complaint by a municipality that a water company was making a charge for fire hydrant service in violation of the special act under which the company had been incorporated was dismissed by the Pennsylvania commission. The incorporation act included a proviso that free fire protection service should be furnished, but in tariffs filed with the public service commission there had

been included a rate for fire service.

There was said to be no doubt that the provision of the special act had been superseded by the Public Utility Law, and therefore the taking and using of water by the municipality without charge for the extinguishment of fires would be a discrimination as to rates and in violation of the Public Utility Law. The commission said:

> The object of the statute creating the Public Utility Law was to provide a complete system for the supervision and regulation of public utilities and the evident intention of the legislature was to make that act the supreme law. York Water Co. *v.* York (1915) 250 Pa. 115. Legislation of the character of that in the Public Utility Law is enacted in the exercise of the police power of the commonwealth and, as such legislation is clearly within the capacity of the state, all special laws inconsistent with the exercise of this authority are repealed and superseded by §1502, Art. XV, of the Public Utility Law, 1937 . . .
>
> Charters are granted to such corporations subject to the reserved power of the commonwealth to supervise and regulate the exercise of their franchises, as it is not within the capacity of the legislature in the assertion of the police power to estop a succeeding legislature from the exercise of that power, although such subsequent exercise may have the effect of qualifying or undoing that which may theretofore have been enacted.

Minersville v. Minersville Water Co. (Complaint Docket No. 11462).

Excess Fares on Trains

A PROPOSAL by a railroad company to increase from 5 cents without refund to 10 cents without refund the excess fare collected on trains owing to failure of the passenger to purchase a ticket where facilities are provided before boarding the train was disapproved by the majority of the Pennsylvania commission, which held that although there was no doubt of the legality of the practice, the amount of the increase had not been justified. The commission was not convinced that the increase in penalty proposed would materially improve the situation.

Commissioner Buchanan, in a dissenting opinion, held that discrimination existed and that this should be removed by permitting the increase to go into effect. He pointed out that the collection of fares was much lower in western Pennsylvania than in eastern Pennsylvania in proportion to the passenger traffic, which, he said, was conclusive of the effect of the larger penalty upon the practice of making cash payments upon trains.

Commissioner Bard, in a dissenting opinion, declared that he found no authority to deny the proposal to increase the penalty charge. He said that the question was primarily one of railroad management rather than one of governmental regulation, and "if the railroad management persists in pursuing a policy of indifference to the public, we are in this instance devoid of power to restrain them from attempting to commit economic suicide." *Pennsylvania Public Utility Commission v. Pennsylvania Railroad Co. (Complaint Docket No. 11362.)*

Oklahoma Phone Appeal Refused

THE United States Supreme Court on February 28th dismissed the appeal of the Southwestern Bell Telephone Company from a decision by the Oklahoma Supreme Court affirming an order of the state commission reducing telephone rates at Tulsa. *Southwestern Bell Telephone Co. v. State of Oklahoma et al.*

NOTE.—The cases above referred to, where decided by courts or regulatory commissions, will be published in full or abstracted in *Public Utilities Reports.*

PREPRINTED FROM

Public Utilities Reports

COMPRISING THE DECISIONS, ORDERS, AND RECOMMENDATIONS OF COURTS AND COMMISSIONS

VOLUME 22 P.U.R.(N.S.) NUMBER 1

Points of Special Interest

¶ *These reports are published annually in five bound volumes, with an Annual Digest. The volumes are $6.00 each; the Annual Digest $5.00. A year's subscription to* PUBLIC UTILITIES FORTNIGHTLY, *when taken in combination with a subscription to the Reports, is $10.00.*

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TITLES

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Re Bonduel Telephone Company

[2–SB–95.]

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[January 5, 1938.]

APPLICATION *by telephone company for authority to issue common stock and certificates of indebtedness as a dividend to stockholders; stock issue authorized and issuance of certificates disapproved.*

By the COMMISSION: Under date of December 4, 1937, Bonduel Telephone Company filed with the Commission an application for authority to issue to stockholders of record as of August 9, 1937, as dividends on

outstanding capital stock of $10,000 par value, (a) $10,000 par value of its common stock, and (b) $10,000 principal amount of certificates of indebtedness.

It appears, from the application, that the articles of organization of the company have been amended recently increasing the amount of the authorized capital stock from $10,000 to $30,000. With the application, the company submitted its balance sheet as of December 31, 1936, and its income statement for the twelve months' period ended December 31, 1936. These are shown below was Tables I and II, respectively:

TABLE I

Assets:	
Plant and equipment	$37,045.45
Cash	4,697.49
Due from subscribers and agents	285.60
Materials and supplies	487.56
Special funds	18,610.92
Treasury stock	35.00
Total	$61,162.02
Liabilities:	
Capital stock	$10,000.00
Accounts payable	934.48
Dividends declared	1,600.00
Depreciation reserve	22,583.49
Surplus	26,044.05
Total	$61,162.02

TABLE II

Telephone operating revenues		$8,615.87
Telephone operating expenses		6,883.50
Net telephone operating revenue		$1,732.37
Taxes		511.12
Telephone operating income		$1,221.25
Miscellaneous income		371.61
Gross income		$1,592.86
Miscellaneous charges to income		
Uncollectible bills	$46.90	
Other charges	101.82	
Dividends declared	1,600.00	
Total deductions		1,748.72
Balance transferred to surplus		$(155.86)

According to the annual report of the company to the Commission for the year ended December 31, 1936, the applicant owns and operates a telephone utility in the village of Bonduel, Shawano county, Wisconsin, and surrounding rural territory serving 576 customers over grounded circuits from a magneto switchboard.

No appraisal of this property has been made by the Commission, but, from the investigation made, it appears that the book value may be used for the purposes of this proceeding without indicating, in any way, that it represents the fair value for any other purpose.

[1] An analysis of the surplus account, as shown by the company's annual reports to the Commission indicates that the company has accumulated $26,044.05 of undisturbed earnings up to December 31, 1936. As to that portion of the pending application which requests authority to issue $10,000 of additional common stock as a stock dividend, there appears to be no question that the company is entitled to receive such authority. A certificate for this amount will be issued.

[2, 3] In regard to the other proposal of the company, i. e., that it be authorized to issue $10,000 of certificates of indebtedness as an additional dividend to the stockholders of record on August 9, 1937, fundamentals of regulation and finance are involved which justify some extended discussion of the principles which have led us to the conclusion that this portion of the pending application should be denied.

This proposal of the company is unique as to public utility financing in

Wisconsin. It is without precedent in so far as proceedings before this Commission are concerned. The application sets forth a description and the terms of the certificate of indebtedness as follows:

"The certificates of indebtedness of the corporation, without any due date, are to be issued to stockholders in proportion to their stock holdings of record on August 9, 1937, with interest payable annually at a rate to be determined each year by the board of directors, such rate, however, not to exceed 5 per cent, and said interest to be paid before any dividends are declared on the common stock. The certificates are to be redeemable at any time by order of the board of directors, and transferable by endorsement and delivery."

The application further states that the reason for this proposal is to enable "the corporation to retain the accumulated surplus as working capital."

The above description of the certificates of indebtedness gives a first impression that they are securities senior to common stock. A more careful analysis indicates that they have the attributes of common stock without some of the rights and privileges of common stock in the following respects:

(a) There is no maturity date, and presumably, the certificates could remain outstanding as long as the company was in existence;

(b) No right is given the security holder to foreclose or enforce payment of either principal or interest;

(c) The security holder has no voice in the management, such as is given to common stockholders, nor may he share in the distribution of future surplus;

(d) The only particulars in which these securities have any appearance of seniority to common stock are the priority in liquidation and the fact that such interest as the directors may decide to pay, be it ever so small, is a charge having precedence over common stock dividends.

In a practical sense, however, the discretion given to the directors concerning interest payable on the certificates nullifies the apparent seniority and reduces the security to a position junior to common stock. The security holder is at the mercy of the directors, in whose election he had no part, with regard to the interest on his investment. Stripped of surplus verbiage, the company proposes to say to the security holder, "We hope to pay you the principal amount sometime; maybe we will pay you some interest, but you can't force us to do it." If, therefore, this security is nothing but a form of capital stock under another name, it should be remembered that § 184.13 (2) of the Wisconsin Statutes provides that no form of capital stock shall bear interest.

Upon the state of the record in this case, we cannot reconcile ourselves to the fact that the "reasonable protection to purchasers of the securities to be issued" which is contemplated by § 184.06 of the Wisconsin Statutes, would be obtained by granting authority to issue this type of security either as a dividend or for cash, property or other consideration. The Commission cannot make the necessary statutory findings as a prerequisite to granting authority. It fol-

lows that this portion of the application must be denied. The protection of investors would be ill served by any other policy.

The statutes (§ 184.03) provide, in part, that the Commission shall not authorize the issuance of securities ". . . in an amount greater than is reasonably necessary for such corporate purposes, having in view the immediate requirements of the corporation and its prospective requirements over a reasonable period in the future, and other relevant considerations." As stated above, the company desired this authority to enable "the corporation to retain the accumulated surplus as working capital." This is the only purpose referred to in the application. If this is the only purpose, it can be accomplished by an additional common-stock dividend and the denial of the Commission will be without prejudice to the right of the company to file another application to the Commission for authority to issue $10,000 of additional common stock as a stock dividend. We construe this procedure to be consistent with the holding of the Wisconsin supreme court in Central Steam Heat & Power Co. v. Railroad Commission, 192 Wis. 595, 599, 600, P.U.R.1927D, 249, 213 N. W. 298.

So much for the specific problem now before us. The more or less academic question of whether the Commission should authorize the issuance of new securities, senior to common stock, to be paid as dividends on common stock is of sufficient importance to warrant further discussion.

In the instant case, even though the terms of the security did provide for a maturity date, a fixed interest rate and other relevant matters designed as a protection to the security holder, the Commission would deny authority to issue this type of security as a dividend. The payment of dividends on stock in interest-bearing obligations does not result in any new funds being received by the corporation. It is a distribution to stockholders of a portion of their equity in surplus of the corporation. In such a case, the corporation has used its credit to pay dividends. It has thereby reduced the amount of its credit which might be necessary to secure new funds with which to acquire property necessary to properly perform its public service functions.

Arthur Stone Dewing, professor of finance, Harvard University, refers to this subject in his book entitled "The Financial Policy of Corporations," on page 563, in which he states:

"Bond dividends are, on the whole, objectionable for a number of reasons. . . . For if the needs of the corporation to conserve its cash resources are sufficiently great to require it to withhold what the accounts indicate should be divided among the stockholders, then its credit demands that its funded liabilities shall not be increased unless the corporation is itself benefited through the receipt of new money."

In the case of Re Erie R. Co. (1907) 1 P. S. C. R. (2d Dist. N. Y.) 115, 123, that Commission frowned upon the policy of permitting bond dividends on the ground that a corporation ought not to incur a liability to divide its future assets without receiving some present or fu-

ture benefit in return. The Commission stated in part:

"By the declaration of a dividend payable in the future no part of the surplus has been transferred to the stockholders. . . . The making of such a dividend is not a loan by the stockholders to the company. . . . In its essential nature it is nothing but a promise to pay to the stockholders at a future time a sum of money, and for this promise it receives no consideration whatever."

Conceivably, a corporation may have a sizable surplus today, but through the vicissitudes of business, this surplus may have turned to a large deficit when the maturity date of any bond dividend arrives. The company would then be in a position of being compelled to actually pay the cash for its dividends at a time when its capital was impaired. It would appear obvious that this method of gambling with the future fortunes of the company is not a sound financial policy and should not be countenanced by this Commission.

The long-established practice of this Commission has been to disapprove of the issuance of any other type of securities, as a dividend to common stockholders, than common stock. We see no reason at this time for any change in this policy.

Certificate of Authority to Issue Stock

Be it remembered that on the 4th day of December, 1937, Bonduel Telephone Company, a public service corporation, applied to the Public Service Commission of Wisconsin for authority to issue $10,000 par value of its common stock and $10,000 principal amount of certificates of indebtedness and for that purpose filed with the Commission a statement, duly signed and verified by its president and its secretary as required by § 184.05 of the Wisconsin Statutes:

That it appears from said application that said corporation desires authority to issue to its stockholders of record as of August 9, 1937, as dividends on outstanding capital stock (a) $10,000 par value of its common stock, and (b) $10,000 principal amount of certificates of indebtedness;

That said corporation duly and satisfactorily complied with the requirements of said statute and the Commission, after considering said statement and the evidence before it, found and determined that as to the issuance of $10,000 of common stock, the financial condition, plan of operation, and proposed undertakings of the corporation are such as to afford reasonable protection to purchasers of the securities to be issued and that the proposed issue of $10,000 of common stock as a stock dividend is lawful and for lawful purposes and reasonably necessary for the purposes of the corporation, and further found and determined that as to the proposed issue of $10,000 principal amount of certificates of indebtedness, the proposal of the corporation is not such as to afford reasonable protection to purchasers of such securities;

Now, therefore, the Public Service Commission of Wisconsin hereby authorizes Bonduel Telephone Company, a Wisconsin corporation, to issue its common stock as follows:

Four hundred shares of its common stock of the par value of $25

per share, making a total issue of $10,000.

Said $10,000 par value of common stock shall be issued and distributed equally, share for share, among the holders of the stock of said corporation now outstanding.

Said Bonduel Telephone Company shall file with the Commission semi-annual reports as of June 30th and December 31st of each year, showing, in addition to other information, the facts in relation to the issuance and distribution of common stock as herein authorized.

Said Bonduel Telephone Company shall not issue the common stock herein authorized, either directly or indirectly, until this certificate shall have been recorded upon the books of the corporation.

It is hereby *ordered* that that portion of the application in the above-entitled matter which requests authority to issue $10,000 principal amount of certificates of indebtedness be and the same is hereby denied without prejudice, however, to the right of the company to file another application to the Commission for authority to issue $10,000 of additional common stock as a stock dividend.

MISSOURI SUPREME COURT

State ex rel. City of St. Louis
v.
Public Service Commission et al.

State ex rel. Laclede Gas Light Company
v.
Same

[Nos. 34515, 34516.]

(— Mo. —, 110 S. W. (2d) 749.)

Appeal and review, § 52 — Commission decision — Land valuation — Weight of evidence.

1. The court is not warranted in overturning findings by the Commission as to value of real estate when the Commission has heard all the evidence and seen the witnesses although the Commission seems to have cut the valuation to the bone; this is only a question as to the weight of the evidence, p. 13.

Witnesses, § 4 — Qualification of expert — Land valuation — Engineer.

2. A civil engineer who had never been a real estate broker but who had

been engaged extensively in making real estate appraisals locally and elsewhere for a number of years, who had intimate knowledge of a gas company's properties, and who had verified the record data relating to sales by talking to the parties concerned was qualified as an expert to testify on the value of real estate of the company, p. 13.

Valuation, § 270 — Land — Fair market value.

3. A public utility company in a rate case is entitled to have its land valued at the fair market value thereof at the time of the hearing, p. 14.

Valuation, § 263 — Land — Adaptability.

4. The fair market value of land must be determined in a rate case without being based on special adaptability to the company's particular usage, p. 14.

Valuation, § 215 — Nonutility land.

5. Land of a public utility company devoted to the generation of electricity or to merchandising and land which is leased or idle is properly excluded in determining a basis for gas rates, p. 14.

Valuation, § 215 — Land partially useful — Supersession.

6. A public utility cannot maintain equipment of comparatively small or no useful value on premises unnecessarily large and valuable and demand a return upon the whole; if undissevered parts become useless, the legitimate service value of the entire tract is necessarily affected, although it is true that it does not always follow that because a machine has become obsolete, the space it occupies also becomes useless, p. 14.

Valuation, § 167 — Pavement over mains — Reproduction cost.

7. Original cost of cutting and replacing pavement in the laying of mains and services is not a fair measure of the reproduction cost years later, if and in so far as the prices of material, the cost of labor, and the conditions of work have changed, where the streets had been paved before the mains and services were laid and the pavement was actually cut and restored during their installation, p. 18.

Appeal and review, § 19 — Questions considered — Points not made in brief.

8. Questions raised in an appellant's original brief but not mentioned in the points and authorities or argument in the brief, or in the appellant's reply brief, should be dismissed without discussion, p. 19.

Valuation, § 25 — Rate base — Date of valuation.

9. The duty of the Commission in determining value for rate making is to value the company's property as of the time of the hearing, p. 19.

Valuation, § 213 — Equipment — Evidence of future use.

10. The Commission in determining what machinery should be classified as used and useful, in valuing gas utility property for rate making, must consider any evidence presented showing what the consumption of gas will be in the reasonably near future, p. 19.

Appeal and review, § 52 — Commission decisions — Inclusion of equipment — Engineering question.

11. Whether it would be practical to include a water gas set in the operating equipment of a gas utility is an engineering question which the court is unable to determine, and it, therefore, leaves undisturbed the Commission's conclusion excluding it, p. 22.

Appeal and review, § 52 — Commission decision — Inclusion of gas equipment — Rate base determination.

12. The court must defer to the finding of the Commission on a close question of fact as to the adequacy of gas holders in determining what property should be included in the rate base of a gas utility, p. 23.

Valuation, § 144 — General overheads — Preliminary organization — Legal, administrative, and incidental expenses.

13. An allowance of 2 per cent on estimated reproduction cost of a gas company's used and useful structural property for preliminary organization, legal, administrative, and incidental expenses was sustained, p. 24.

Valuation, § 135 — Overheads — Engineering and superintendence.

14. An allowance of only 4 per cent for engineering and superintendence was held to be inadequate in determining the rate base of a gas utility, p. 24.

Valuation, § 150 — Taxes during construction.

15. Allocation to construction of only a fractional part of the taxes maturing during one of the years of construction, this representing the portion of the year before the plant is in operation, on the theory that taxes falling due each year are to be considered a charge against the operating revenues for that year, regardless of when they became a liability, cannot fairly be applied to an assumed reproduction new, since during the years of construction the taxes would be running and attach to the property as a liability but the plant would not be earning anything; taxes accruing during construction are a capital outlay and should be charged either to construction or to working capital, p. 25.

Valuation, § 94 — Property subject to depreciation — Land and right of way.

16. Neither land nor right of way is subject to depreciation, p. 29.

Valuation, § 83 — Accrued depreciation — Obsolescence and inadequacy.

17. Obsolescence, inadequacy, and other like factors independent of actual use, wear and tear should be considered in estimating accrued depreciation, p. 30.

Valuation, § 93 — Accrued depreciation — Depreciation of overheads.

18. A Commission decision that all general overheads except the item of preliminary organization, administration, legal, and miscellaneous expenses, and the item for taxes during construction, should be depreciated was left undisturbed on appeal although there were said to be many precedents holding general overheads should be depreciated along with the property itself because they enter into the cost thereof and therefore of each unit making up the whole, p. 31.

Return, § 9 — Fair value basis.

19. The object of the inquiry in a rate investigation is to find the fair value of the company's property for the purpose of fixing a rate base, p. 32.

Valuation, § 30 — Rate base — Original cost — Reproduction cost.

20. Both the original cost and the present cost of reproduction of public utility property should be considered in fixing the rate base, p. 32.

Valuation, § 81 — Accrued depreciation — Deduction from fair value or original cost.

21. Accrued depreciation should not be deducted from original cost in ascertaining the rate base but from the fair value, p. 32.

Valuation, § 24 — Rate base — Consideration of future prices and wages.

22. The Commission, in determining the value of a company's property for rate making is bound not only to consider prices and wages prevailing at the time of the investigation but also to make an honest and intelligent forecast as to the probable price and wage levels during a reasonable period in the immediate future so far as discernible, p. 34.

Valuation, § 332 — Going concern value — Separate allowance.

23. Where the physical property has been appraised as an assembled whole doing business and earning money, no additional allowance should be added for going value, because it is already included, p. 34.

Valuation, § 330 — Going value.

24. An allowance for fair value exceeding in a substantial amount the worth of the property found by the Commission independent of price trends and going value was held to have included a sufficient allowance for going value, p. 34.

Depreciation, § 14 — Basis for annual allowance — Fair value — Original cost.

25. Annual allowance for depreciation should be based upon fair value, not original cost, p. 36.

Depreciation, § 26 — Annual allowance — Relation to accrued depreciation.

26. Accrued depreciation, as it may be observed and estimated at a given time, and an appropriate allowance for depreciation according to good accounting practice need not be the same; observable depreciation of a new piece of equipment installed in a plant is not uniform and it will continue in service for a considerable time without apparent deterioration and then toward the end of its life breakdowns and repairs occur more frequently until it has to be retired, while, on the other hand, the annual allowance for depreciation is anticipatory and runs along the same each year until at the end of the useful life of the property the cost or value thereof will have been absorbed, p. 36.

Depreciation, § 56 — Annual allowance — Gas utility.

27. The court held that it was not warranted in overturning a Commission finding based on substantial evidence that $1\frac{1}{2}$ per cent was sufficient for annual depreciation allowance of a gas utility, p. 38.

Depreciation, § 26 — Recoupment of past losses — Inadequate reserve.

28. A public utility which did not begin to set aside a depreciation reserve in its early days cannot recoup any resultant losses by charging them up to consumers in the rates exacted now, p. 38.

Evidence, § 3 — Judicial notice — Supplanting of gas by electricity — Highway illumination.

29. The court can take judicial notice of the fact that electricity very generally has supplanted gas for highway illumination, p. 38.

Expenses, § 35 — Amortization of retired equipment — Superseded gas lights.

30. A gas company's loss of business by reason of a change from gas to electric street lights is a true case of supersession, and the company is not entitled to amortize its retired gas street lighting equipment, p. 38.

Expenses, § 35 — Amortization of nonused or useful property — Partial change to natural gas.

31. No basis was found on the record before the court for saying that

consumers should be charged for amortization of the value of property not used or useful where a change had been made from artificial gas to mixed gas by a company which had failed for many years to set aside a depreciation reserve, p. 38.

Expenses, § 135 — Cost of change to natural gas — Customers' appliances — Amortization.

32. Cost of changing customers' appliances when natural gas is introduced for mixing purposes may be charged to operating expenses and amortized where necessary, if this has not already been done, p. 43.

Expenses, § 4 — Commission authority — Allowance for appraisal cost.

33. The Commission is authorized to determine whether expense incurred by a public utility company, in presenting appraisals in a rate case, is reasonable, p. 43.

Return, § 92 — Gas utility.

34. A return allowance of 6½ per cent to a gas utility was sustained in view of prevailing interest rates and a predicted increase in revenues from the same property with improved economic conditions, p. 44.

Rates, § 124 — Comparisons — Costs.

35. Evidence as to rates in other cities and as to overcapitalization and excessive operating costs was held insufficient to overturn a Commission rate order where the valuation and rate of return had been fixed by the Commission independently on the basis of fair value and general operating conditions, p. 44.

Return, § 9 — Net return on fair value.

36. The fair return allowed to a public utility company by the Commission means a net return upon the fair value of the property, p. 44.

[July 30, 1937. Rehearing overruled December 9, 1937.]

EN BANC. APPEAL *from judgment affirming Commission order reducing gas rates; affirmed and cause remanded with directions. For Commission decision, see 7 P.U.R.(N.S.) 277.*

APPEARANCES: Robert W. Otto and Taylor, Chasnoff & Willson, all of St. Louis, for Laclede Gas Light Co.; Edgar H. Wayman, City Counselor, and John G. Burkhardt, Associate City Counselor, both of St. Louis, for city of St. Louis; James P. Boyd, General Counsel, of Paris, and Daniel C. Rogers, Assistant Counsel, of Fayette, for Public Service Commission.

ELLISON, J.: This is an appeal from a judgment of the circuit court of Cole county affirming an order of the Public Service Commission dated November 30, 1934 (7 P.U.R.(N.S.) 277) which fixed for rate-making purposes the fair value of the property of the appellant Laclede Gas Light Company, a large public utility operating in St. Louis, and ordered a 6 per cent reduction in rates to domestic and commercial consumers. The valuation fixed by the Commission is $39,000,000. The company contends it should be at least $50,000,000. The city of St. Louis, which also has appealed, maintains it does not exceed $27,000,000.

In October, 1925, the Commission

found the fair value of the company's property to be $45,600,000, and no appeal was taken. In 1927, the Commission fixed the value of the property at $47,000,000. On appeal that order was disapproved by this court in State ex rel. St. Louis v. Public Service Commission (1931) 329 Mo. 918, P.U.R.1932A, 305, 47 S. W. (2d) 102. The Commission then held further hearings and arrived at the valuation here assailed. Re Laclede Gas Light Co. (1934) 7 P.U.R. (N.S.) 277. The essential, but by no means complete, details of the finding are shown in the following table:

	Reproduction cost of all property	Part held not used or useful	Part used and useful	Depreciation	Fair value used and useful
Land	$3,085,020	$1,335,076	$1,749,944	none	$1,749,944
R/W	6.868	none	6,868	none	6,868
Total real estate	$3,091,888	$1,335,076	$1,756,812	....	$1,756,812
Structural property					
Buildings, etc.	$4,992,805	$946,209	$4,046,596		
Coke plant	5,038,529	none	5,038,529		
Mains	12,026,454	none	12,026,454	12%	$27,415,649
Services	4,421,769	none	4,421,769		
Plant and general equipment, meters, etc.	7,521,544	1,900,745	5,620,799		
Total structural property	$34,001,101	$2,846,954	$31,154,147		
(Called in Commission's Report	$34,000,000)				
General overheads					
2% for preliminary organization, legal, administrative, and miscellaneous expense	....	....	$623,000	none	$623,000
4% for engineering and superintendence	....	....	1,014,800	12%	893,024
Taxes during construction	....	....	173,300	none	173,300
Rent on leased property	....	....	35,150	15%	29,878
Interest during construction	....	....	2,136,900	12%	$1,880,472
Total overheads	....	....	$3,983,150	....	$3,599,674
Total of all property and overheads	....	....	$36,894,109	....	$32,772,135
Other items and elements of value					
Materials, supplies and working capital					$1,600,000
Additions and betterments to June 30, 1934					161,798
Amount added for upward price trends and going value					4,466,067
Grand total fair value, used and useful property					$39,000,000

The record in this case is voluminous, containing over 2,800 printed pages, with original exhibits of equal length filed by stipulation and consent of court. The company's original and reply briefs contain 390 pages and the city's briefs 356 pages. Counsel for the Public Service Commission also have filed a 60-page brief. The city makes 21 assignments of error, and the company 64. It is obvious that we cannot discuss all these assignments and the whole evidence within the compass of an opinion of reasonable length.

The company's physical properties consist of lands owned or leased, right of way, and structural property. This latter is composed of buildings and like structures, a large by-product coke

plant, gas mains throughout the city of St. Louis, service lines leading from these mains to the consumers' premises, gas meters, plant equipment such as gas generating and storing machines and appurtenances, and office equipment.

In addition, in the valuation of the property allowance was made for overheads, such as expense of preliminary organization and for legal and administrative services, taxes, interest, and other miscellaneous outlays. Further, other elements of value were conceded, such as materials, supplies, working capital, additions, and betterments made by the company between July 31, 1933, the valuation date of the appraisal of the company's properties, and June 30, 1934 (during the hearing before the Commission), together with an allowance for upward price trends during the same period, and an allowance for going value. We shall take up in their order such of these as require discussion.

Real Estate

1. *Land.* The company owns fourteen tracts of real estate and leases an office building. The lease did not enter into the valuation as such. Four witnesses appraised the other tracts, two of them, Messrs. J. H. Farish and F. G. Zeibig, being real estate brokers and expert witnesses for the company, one, M. M. Kinsey, an engineer, being an expert witness for the city, and the fourth, Mr. C. H. Herald, Jr., a real estate broker, having appraised the land as an expert witness for the Commission. The area of these several tracts and the valuations put upon them by the four witnesses and by the Commission in its report are as follows:

Station	Area in Acres	Company's Witnesses Farish	Company's Witnesses Zeibig	City Witness Kinsey	P.S.C. Witness Herald	P.S.C. Report
A	12.98	$847,565	$847,565	$536,900	$820,554	$565,044
B	6.41	2,094,260	1,747,755	1,047,100	2,862,155	1,501,659
C	1.41	30,634	33,686	61,600	61,651	40,000
D	.88	9,277	11,600	11,700	14,690	11,596
F	.58	33,730	33,730	25,300	42,160	33,730
G	3.54	77,048	77,048	50,200	77,066	62,135
H	6.08	32,971	41,214	25,800	44,693	32,971
J	.72	15,724	15,724	17,300	31,600	15,724
L	6.54	280,609	280,609	258,700	366,192	272,954
N	9.95	108,420	108,420	39,900	91,545	87,500
Adams Street	.73	11,040	11,040	11,000	22,080	11,040
Boyle & Papin Streets	.41	8,000	8,000	7,400	8,000	8,000
Coke Plant	168.18	456,235	503,145	475,500	671,003	441,542
Reilly & Espen-Cheid	.24	1,125	1,125	1,900	2,250	1,125
Totals	218.65	$4,006,638	$3,720,662	$2,570,300	$5,116,239	*$3,084,566
*Called in Commissioner's report						$3,085,020

2. It will be noted the total valuations put upon the real estate by the company's two witnesses, Farish and Zeibig, respectively, were $4,006,638 and $3,720,662; by the city's witness Kinsey, $2,570,300; and by the Commission's witness Herald, $5,116,239. The valuation made by the disinterested Commission's witness is almost exactly twice that of the city's witness. The average of the four valuations is $3,853,460. The valuations by the two company witnesses are much nearer that average. In fact, the mean of

their two valuations comes within $10,000 of it. The Commission's report fixes the valuation at $3,085,020, which is more than $2,000,000 below that of its own witness Herald and nearly $779,000 less than the average of all the witnesses.

3. This difference (and more) is due to the drastic cuts made by the Commission in the valuation of Stations A and B. On the former both Farish and Zeibig put a value of $847,-565, and the Commission's witness Herald a value of $820,554. The figures of the city's witness, Kinsey, for this tract were $536,900, nearly $300,-000 under the average of the others, and the Commission's report sets the valuation at $565,044, which is $269,-000 less than the mean of the valuations of Farish, Zeibig, and Herald. And on Station B Farish's figures are $2,094,260, Zeibig's $1,747,755, the Commission's witness Herald's $2,-862,155, and the city witness Kinsey's $1,014,100, which latter is nearly $1,-200,000 below the average of the three other valuations on this tract of 6.41 acres. The Commission's report fixes the value at $1,501,659, falling under the above average by $733,300, and reducing the valuations on these two tracts more than $1,000,000 below the mean of all the witnesses except Kinsey.

[1, 2] 4. The city's brief argues that the valuations of Farish and Zeibig and mainly those of Herald were mere judgment figures, whereas its witness, Kinsey, had fortified himself by collecting data as to actual, bona fide sales of similar property adjacent to the various tracts involved. The company, on the other hand, points out that its witnesses Farish and Zeibig had been engaged in the real estate business in the city of St. Louis for forty-two years and fifty years respectively, and that the Commission's witness Herald had been similarly engaged for fourteen years, whereas the city's witness Kinsey was a civil engineer, had never been a real estate broker, and had no real knowledge or judgment about such matters, but merely collected data from the land records, interviewed grantors and grantees, and based his testimony thereon, although some of these transactions were not sales but leases. As against this the city stresses the fact that Kinsey testified he had been engaged extensively in making real estate appraisals for a number of years in St. Louis and various other cities for a number of railroads and for the city of St. Louis, had an intimate knowledge of the appellant gas company's properties, and had verified the record data he obtained by talking to the parties concerned.

5. The Commission's report declared Kinsey a qualified witness, and, after discussion of the evidentiary facts, arrived at the valuations set out earlier in this opinion. It seems to have cut them to the bone. In saying this we realize the mere averaging of the valuations of the four witnesses does not necessarily give the true value of the land. But, when it is remembered that the valuations of the city's witness Kinsey are so much below those of the other witnesses, especially the Commission's witness Herald, we think that result is indicated. Nevertheless that is only a question as to the *weight* of the evidence. The Commission heard all the the evidence and saw the witnesses,

and we are not warranted in overturning its findings. We agree with the Commission's report that Mr Kinsey was qualified as an expert to testify on the value of real estate of the kind here involved in the city of St. Louis. Though he was not a real estate broker, he was a civil engineer long engaged in real estate valuation work in that city, and his experience was sufficient to furnish a basis for his testimony as an expert. The two cases cited by the company, Gash v. Mansfield (1930) — Mo. App. —, 28 S. W. (2d) 127, 132, and Stitzer Hotel Co. v. Beyer (1932) 55 F. (2d) 620, 622, are not in point on their facts. The following decisions amply support the Commission's view: Union Elevator Co. v. Kansas City Suburban Belt R. Co. (1896) 135 Mo. 353, 375, 36 S. W. 1071, 1076; Schrodt v. St. Joseph (1904) 109 Mo. App. 627, 630, 83 S. W. 543, 544; St. Louis-S. W. R. Co. v. Hoyt (1933) — Mo. App. —, 63 S. W. (2d) 214, 216.

[**3, 4**] The company cites cases holding it was entitled to have its land valued at the fair market value thereof at the time of the hearing, such as Willcox v. Consolidated Gas Co. (1909) 212 U. S. 19, 52, 53 L. ed. 382, 399, 29 S. Ct. 192, 200, 48 L.R.A.(N.S.) 1134, 15 Ann. Cas. 1034. The city asserts the land must be valued at its fair *market* value, and not on the basis of its special adaptability to the company's particular uses, citing Minnesota Rate Cases (1913) 230 U. S. 352, 451, 57 L. ed. 1511, 1562–1564, 33 S. Ct. 729, 961, 48 L.R.A.(N.S.) 1151, 1188, Ann. Cas. 1916A, 18, 48. Both these propositions are correct, but they do not, so far as we can see, affect the result in this case. The land was valued in accordance with them.

[**5, 6**] 7. *Allocation of real estate.* But, while thus finding the value of the company's 218.65 acres of land to be $3,085,020, the Commissioner's report rejected as not used and useful in the gas business over 81.45 acres thereof, being part in some instances and all in others of eleven of the fourteen tracts. The portion thus excluded represented $1,335,076 of the total valuation, leaving land to the amount of $1,749,944 in the rate base. The omitted land was over 37 per cent of the whole in area and over 43 per cent in value. Some of it was rejected because it was devoted to the generation of electricity or to merchandising, some because it was leased or idle. We can see no valid objection to that. But by far the greater part thereof was cut out because of supersession. This was done on the following theory: In former times the company manufactured its gas partly in its by-product coke plant, partly in water gas sets, and partly in coal gas retorts. The coal gas plants, especially, were less efficient than modern equipment and the gas produced by them of lower heating value. Thereafter the company began to enrich the gas thus produced by the introduction of oil still gas purchased from oil refineries in Illinois near St. Louis. And in 1931 a further advancement was made by the purchase and admixture of natural gas drawn from a pipe line built into St. Louis by another company.

8. The Commission found this evolutionary process in the production of gas had rendered part of the company's gas manufacturing and storing equipment obsolete and not properly

includable in its rate base. This machinery and its appurtenances occupied space in buildings and like structures on the company's land. To determine what part of the buildings and land should be excluded along with the superseded machinery, the engineers for the Commission calculated the ratio which the area occupied by the rejected machinery bore to the number of square feet of floor space in the building housing it, and deducted that percentage from the value of the building. With reference to the land on which the building stood, they took the number of square feet in that part of the building classified as nonused, and subtracted the value thereof (at the average price per square foot for the land) from the value of the whole tract. In its report the Commission criticized this method of allocating the land, saying it withdrew from the value of the whole tract only the value of the space actually occupied by the rejected machinery, and ignored the fact that the whole tract was subservient to the building and the nonused as well as the used machinery thereon. The Commission held that the proportion which the unused portion of the building bore to the used portion should be applied also to the whole underlying tract of land and that a like percentage should be deducted from the value of the latter.

9. The company vigorously assails this method, calling it a "pock mark theory," which would result in eliminating disconnected bits of land scatteringly over the premises. Attention is called to one instance where a tar well 26 feet in diameter on a tract of land was excluded from the rate base. It is pointed out that there is no way of selling or severing this circular area and hole from the tract. So also it is argued that it would sometimes be impossible to do away with a given percentage of a building without removing a portion of the walls and roof and thereby destroying it as a shelter for the useful machinery therein. We think this contention misses the point. The question is not necessarily one of physically severing and withdrawing property, even though the whole of it may have been wisely bought in the first instance. Neither is there, under this topic, a question whether the company should be compensated for the loss of the property withdrawn. It is solely a question of valuing the property *used and useful* in the gas business for rate-making purposes. And it is obvious that a utility cannot maintain equipment of comparatively small or no useful value on premises unnecessarily large and valuable and demand a return upon the whole. If undissevered parts become useless, the legitimate service value of the entire tract is necessarily affected.

10. True enough, it does not always follow that, because a machine has become obsolete, the space it occupies also becomes useless. The space may still be reasonably and proximately useful in the operation of other needed machinery on the premises. But we understand this judgment factor was taken into consideration. Mr. Brockhoff, engineer for the Commission, testified: "In some cases we use the exact area occupied by a certain piece of equipment, for instance, wells used in the yard. In that case, we use the exact area, however, there may be some equipment inside of buildings, and then we used the proportionate

area of that floor space which in our judgment should come out when the equipment comes out." The witnesses for the company conceded this theory was correct but did not use it because they did not think any of the machinery should be rejected. The Commission adopted the foregoing theory of its engineers as to the buildings and merely extended it to the underlying premises. A determination of whether and to what extent this theory was correct must be deferred until we come to consider the machinery.

11. *Right of way.* The right of way was valued at $6,868 and was allowed to go into the rate base at that figure. There was no controversy about it, and nothing to call for discussion in this opinion.

Structural Property

12. *Buildings and allocation thereof.* The reproduction cost of the buildings and like structures was fixed in the Commission's report at $4,992,805. The valuations of the expert witnesses for both appellants and the Commission were so close to this figure that it can be accepted without discussion as fair. But the Commission cut this valuation $946,209 for buildings and structures which it deemed nonused and useful, leaving $4,046,596 in the rate base. The company's engineering experts thought substantially all of them should be included. The city's experts contended the reduction should exceed $1,200,000, this being over $275,000 more than the Commission had taken out. The widely divergent views of the company's experts and the city's experts as to what buildings and like structures should be excluded from the rate base were bottomed mainly on their differences as to what machinery housed therein or appurtenant thereto should be rejected as nonuseful. Again we say a discussion of this question must be reserved until we take up the allocation of the machinery.

13. *Coke plant.* The company's large by-product coke plant was built by the Koppers Company, an eastern corporation which held basic patents on much of the installation. By agreement between the Commission and the company, that concern was employed to appraise the reproduction cost of the plant. The cost so estimated, with a minor deduction agreed upon by the engineers for the company and the Commission, was $5,497,259. But the city demurred, and, after going over the appraisal with a representative of the Koppers Company, set its own figure at $4,171,881, a reduction of over $1,300,000. The Commission's report discusses these conflicting appraisals, makes some adjustments, and sets the reproduction cost at $5,038,529. The whole plant was allowed to go into the rate base as of that valuation. There was no allocation of any part of the structural property therein as nonused or useful. We see no ground for interference by this court with the Commission's conclusion.

14. *Mains.* The gas mains throughout the city of St. Louis constituted more than a third of all the company's constructed property. One of its two experts valued them on a reproduction cost basis at $13,278,960, the other at $12,715,084, and the Commission's engineers at $12,568,759. But the city's expert figured them over $2,000,000

lower, at $10,208,982. There was no substantial disagreement as to the unit cost of the pipe and materials entering into their construction. The differences of opinion arose chiefly over questions: (1) As to how much of the excavation work for their installation could be done with trenching machines and how much would have to be done by hand labor; (2) as to the necessity and expense of excavating "bell holes," these being enlargements of the trenches at the pipe joints to provide room for caulking the joints; (3) as to the amount of hand excavating a laborer reasonably could do in a 9-hour day; (4) as to the expense of laying and caulking the mains; (5) and touching the proper allowance for direct overheads on labor and materials.

15. One of the company's two experts estimated 52 per cent of the linear excavation for mains could be trenched by machinery, the other 64 per cent, and the Commissioner's engineers 48 per cent. The city's evidence was that 75 per cent of the work could be thus done, but this did not make any allowance for interstitial work at bell holes, water services, and minor obstructions, which actually would have to be done by hand, and was based on experience in excavating streets where very little paving had to be cut. The Commission's report considers in detail the evidence and these several estimates, makes necessary computations and adjustments, and arrives at the conclusion that only 45 per cent of the work could be machine trenched.

16. For the bell holes the Commission's engineers figured 22.8 per cent additional excavation, contemplating that at each pipe joint the trench would be dug 6 inches wider on each side for a linear distance of 3 feet and deepened 9 inches. The city's engineers estimated only 4 per cent, but they allowed nothing for additional lateral excavation at the pipe joints and assumed only that the trench would be dug 5 or 6 inches deeper for a distance of about 2 feet. The Commission's report approved the method recommended by its engineers, but concluded the ditch need not be widened clear to the top. This necessitated a reduction in their percentage from 22.8 per cent to 15 per cent.

17. On the man-hour performance in hand excavation one company expert estimated 3.4 cubic yards per man per 9-hour day, the other 6 yards, the Commission's engineers 4 yards, and the city's expert 8.8 yards. But this latter did not allow for the slower work at intersections and in digging past obstructions and the like. The Commission's report allowed 5 cubic yards per man per 9-hour day.

18. The city's engineers estimated the cost of laying and caulking mains would be about $300,000 less than figured by the Commission's engineers. But, as the Commission's report observes, there is nothing in the record showing the estimate of the latter needs correction or adjustment, especially in view of the fact that the city's calculations seem to be based largely on experience in laying water pipe where less care is required than in confining poisonous and inflammable gas, and the caulking at joints tends to swell and tighten instead of drying as with gas pipe.

19. On the direct overheads on labor and materials the city's expert

again was about $325,000 lower than the Commission's engineers and the company's expert. The Commission's engineers added a composite percentage of 13.4 per cent for these items, but the city's expert allowed only 8.7 per cent, the difference being due to the higher figure estimated by the former for labor overheads. The Commission's report approved the larger percentage used by its engineers, holding that, since the city's expert had accepted their estimates for direct labor overheads on all the other property, it would be illogical to reject them for labor on the mains since all these overheads were interrelated.

20. In still another respect (not mentioned above), the city contends the Commission's report was too liberal, by about $300,000, in appraising the reproduction cost of the mains. Most of the gas mains and service pipes were laid in streets which were paved at the time of the installation. The city maintained as a matter of law that the appraisal cost of cutting and replacing this pavement should be figured on the basis of original costs rather than present-day costs. The Commission held to the contrary, but we reserve a discussion of that question for the second and third paragraphs below dealing with the services. All we need say here is that the conclusion reached by the Commission on the several points of difference mentioned above resulted in fixing the reproduction cost of the mains at $12,026,454, which was about $500,000 less than the amount computed by its engineers, and over $1,800,000 more than the city allowed. We approve that finding. All the mains were accepted as used and useful, and therefore no questions of allocation arise.

21. *Services.* The reproduction cost of the services running from the gas mains to consumers' premises was estimated by one of the company's experts at $4,657,200, by the other, Mr. Spooner, at $4,421,269, by the Commission's engineers at $4,923,960, and by the city's expert at $4,149,389. The Commission's report adopted Spooner's figures. The city does not dispute the correctness of his unit prices, but objects to the "inventory quantities" he used; that is, the number of feet of services. The Commission's engineers and the city's engineers used one method of computing the number of feet of service pipe and Mr. Spooner another. The report discusses these methods in some detail and reaches the conclusion that Spooner's method was preferable. We are not justified in overturning it.

[7] 22. As already stated in the second preceding paragraph, the city also contended as a matter of law that in computing the reproduction cost of mains and services the expense of cutting paving thereover should be figured at original cost rather than present-day cost. This contention was bottomed on Des Moines Gas Co. v. Des Moines, 238 U. S. 153, 171, 59 L. ed. 1244, P.U.R.1915D, 577, 589, 35 S. Ct. 811; Worcester Electric Light Co. v. Attwill, 23 F. (2d) 891, 892, P.U.R.1927E, 796 (P.U.R.1929B, 1, 42–47); Aluminum Goods Mfg. Co. v. Laclede Gas Light Co. (1926) 16 Mo. P. S. C. R. 114, 172, P.U.R. 1927B, 1.

23. The Des Moines Case was dealing with a situation where the streets were unpaved when the gas mains

were put in but had been paved thereafter before the valuation date. It was held nothing could be allowed in the appraisal of the reproduction cost for a theoretical cutting and replacement of the paving. In the instant case the streets had been paved before the mains and services were laid, and the pavement was actually cut and restored during their installation. In the Worcester Case the amount allowed for pavement thus opened and replaced was the actual, historical cost of the work. In the former Laclede order of the Missouri Public Service Commission last cited above, the decision of the United States Supreme Court in the Des Moines Case, *supra,* was construed to restrict the allowance to original cost. But in Brooklyn Borough Gas Co. v. Prendergast (1926) 16 F. (2d) 615, 629, P.U.R. 1927A, 200, the allowance for such paving work actually done was the present-day reconstruction cost; so, also, in Arkansaw Water Co. v. Little Rock (U. S. Dist. Ct. 1923) P.U.R. 1924C, 73, 100, and apparently in Re Com. ex rel. Rosslyn Gas. Co. (Va. 1933) 3 P.U.R.(N.S.) 61, 73, 74. That course was followed by the Missouri Public Service Commission in St. Joseph v. St. Joseph Water Co. (Case No. 6851, p. 54, August 25, 1933). We think it is the correct method. Obviously the original cost of cutting and replacing pavement in the laying of mains and services is not a fair measure of the reproduction cost years later, if and in so far as the prices of material, the cost of labor, and the conditions of work have changed.

[8] 24. *Plant and general equipment.* The fair value of the company's plant and general equipment, meters, and the like, was appraised by the Commission's engineers at $7,521,544, by the city's expert at substantially the same amount, $7,516,425; by one of the company's experts, Mr. Spooner, only a little higher, at $7,558,075, and by the company's other expert, Mr. Lucas, at $8,031,173. But to their figures Spooner and Lucas each added $319,058 for spare parts on hand, and $1,658,765 for company records compiled through the years, consisting of maps, plats, and drawings showing the location of its property under and above ground, and records disclosing in detail its experience in its operations. The Commission adopted the aforesaid valuation recommended by its own engineers of $7,521,544, and made no allowance for spare parts, except such as was included in a separate estimate for material, supplies, and working capital, and none for the company records, except such indefinite amount as was included in the allowance for going value. In the statement in its original brief the company asserts these two items should have been separately inventoried and appraised as a part of its physical property. But the question is not mentioned in the points and authorities or argument in the brief, or in its reply brief. So we dismiss it without discussion.

[9,10] 25. *Allocation of plant and general equipment.* The Commission's report rejected property in this class as nonused and useful to the amount of $1,900,745, nearly all of it being gas machinery. In determining how much of the machinery should be classified as used and useful, the Commission considered three things:

(1) What the maximum day's consumption of gas would be for a reasonable period in the future; (2) what machinery was fit for use; (3) and the capacity of the available machinery. In approaching these questions it was recognized by all the parties that in furnishing gas to the public for lighting, cooking, heating, and other purposes the company was duty bound to maintain at all times, even on the shortest and coldest days of winter, without notice, a supply of gas adequate to serve consumers' needs, convenience, comfort, health, and safety, regardless of whether it could obtain natural gas at the time, and notwithstanding the amount of machinery necessary at such times of peak demand would be more than sufficient to meet the average or even the average winter demand. In other words, some of the machinery is needed only for stand-by and emergency reserve, as in case of a breakdown, stoppage for repairs or maintenance, a failure of the natural gas supply, or unusually cold weather. The Commission further recognized that the company was bound to anticipate the requirements of the public for a reasonable future period.

26. On the matter of anticipated gas consumption, the Commission limited itself to an estimate of the maximum day's demand for manufactured gas which the company would experience in the year 1935 if its supply of natural gas temporarily failed, and fixed the amount at 270,000 therms, this being the figure proposed by the company. The year 1935 was arbitrarily picked by the Commission's engineers and the city's experts as a proper test period because it was about two years ahead of the start of the appraisal in 1933. Commission's hearings were held in May, July, August, and September, 1934, a mean period only about five months before the test year began. The company contended, as it does here, that the Commission should have looked into the future as far as 1940 because the appraisal was made at the bottom of the economic depression, better times were returning, and business in the new field of house heating gave promise of expansion. In this connection the company filed an exhibit, No. 29, showing its annual send-out and sales of gas in therms and the maximum day's send-out for ten years before the appraisal, and as estimated by its experts from 1934 to 1940 as follows:

Year	Send-out	Sales	Peak Day
1923	45,793,000	42,586,777	166,704
1924	47,988,248	44,624,638	185,328
1925	47,098,310	44,570,000	180,000
1926	48,357,679	45,670,000	170,202
1927	48,312,839	46,760,000	185,532
1928	49,028,312	48,130,000	186,294
1929	50,108,612	48,704,000	178,218
1930	47,170,770	46,159,000	180,234
1931	44,008,059	42,351,094	150,732
1932	43,969,652	42,141,740	165,054
1933	43,299,933	40,771,142	191,258
1934	45,700,000	42,457,000	210,579
1935	52,019,000	48,581,000	270,835
1936	60,185,000	56,595,000	337,741
1937	65,727,000	62,063,000	402,818
1938	70,869,000	67,151,000	466,080
1939	75.811,000	72,002,000	528,460
1940	80,653,000	76,777,000	590,686

27. It will be noticed that the yearly send-out and sales in 1933 when the appraisal was being made were the lowest in eleven years. The exhibit clearly shows they had gradually increased until 1929 and then progressively declined until 1933. From then on the figures are estimates, but there was evidence at the hearing that conditions and prices were trending upward. The law is well settled that it

was the duty of the Commission to value the company's property as of the time of the hearing (rather than the valuation date in the antecedent appraisal), Willcox v. Consolidated Gas Co. 1909) 212 U. S. 19, 52, 53 L. ed. 382, 29 S. Ct. 192, 48 L.R.A. (N.S.) 1134, 15 Ann. Cas. 1034; and to consider any evidence there presented showing what the consumption of gas would be in the reasonably near future. That proposition is not disputed by any of the parties. But the Commission in its report did accept, in round numbers, the company's estimate of the maximum day's send-out for 1935 and fixed it at 270,000 therms. Was that sufficient?

28. We are unable to say it was not. The peak-day load of 191,258 therms in 1933, when the annual send-out and sales were the lowest in eleven years, was the highest for that same period. And yet the estimated maximum day's outage for the next year, 1934, is increased by the company to 210,579 therms, whereas in 1923, with approximately the same annual send-out and sales, the largest day's send-out was only 166,704 therms. (Actually, the peak day in the winter months of 1934 prior to the hearing did not reach the 1933 maximum.) And the estimated peak day's demand for 1935, 270,835 therms, is an increase of more than 60,000 therms over the estimate for 1934, and doubles the variance between any two previous consecutive years shown by the exhibit. From 1936 on the estimates mount by jumps of over 60,000 therms per year. The Commission's report held that the company's past and then current experience did not justify these liberal estimates of future increases in the maximum day's send-out.

29. It is true that about 1929 the company began to develop its house-heating business; and that gas consumption for that purpose probably will increase more rapidly than for other uses as economic conditions improve. In January, 1934, the company had 1,463 house-heating customers, and the testimony of Mr. Brockhoff, the Commissioner's engineer, was that a gas plant reasonably may expect to sell house heating to 8 per cent or 10 per cent of its customers, which would be 18,000 such services, based on the 180,000 active meters the company had in 1933. It is also true that as the annual send-out and sales increase the maximum day's demand will increase, other conditions being the same. But, as the company points out in its brief (on another question), the maximum day's send-out in a year does not bear a fixed ratio to the total send-out for the year. The exhibit plainly indicates this. A few extremely cold days in winter will raise the peak day's demand for the year sharply, whereas unusually moderate temperatures generally throughout the rest of the heating period of the year will lower the total send-out. As a matter of fact, the record shows that in 1933, when the annual send-out was the lowest in eleven years but the peak day was the highest, the coldest day in five years occurred. Mr. Brockhoff further said in his testimony before the Commission in 1934 that he made his estimate as of July 31, 1933, when he figured the future demands for gas which would be experienced by the company in 1935, and he added: "If I were to make it as of today, I would

allow more time for the gas company to protect its anticipated needs."

30. But, considering erratic weather conditions, and the fact that house heating is more or less in an experimental stage in St. Louis, we think the Commission was justified in refusing to go beyond the year 1935 in estimating the future maximum demands for gas which would be made upon the company's machinery, though it will be the duty of the Commission after service of the mandate of this court to adjust its findings if facts intervening since this cause was brought up for review suggest such a course.

31. Regarding the usefulness and capacity of the machinery: The Commission in its report followed the recommendation of its engineer Mr. Brockhoff, and accepted as used and useful in gas operations the coke plant and its appurtenances, six water gas sets at Station A and two water gas sets at Station B, together with certain purifier and condenser apparatus which its engineers did not include. It excluded two water gas sets at Station A and three water gas sets at Station B with their appurtenances, and also all the coal gas retorts and accessory equipment. The coal gas retorts were not adapted to stand-by emergency service because two or three weeks' time would be required to get them warmed up and started, and they were less efficient. The two omitted water gas sets at Station A were of small capacity, low efficiency, and in bad repair, and had not been used by the company for seventeen years—since 1917. Two of the three rejected sets at Station B, though used, were of similar limited capacity and had been built forty years before, in 1893, and the other one, No. 3, in 1902. This last-mentioned set had not been used since 1927.

32. The conclusion reached by the Commission was that the coke plant, the six water gas sets at Station A, and the two sets at Station B classified as used and useful had a total daily capacity of 233,000 therms; and that these, together with the company's holders in which gas was stored, were sufficient to meet the peak load requirement of 270,000 therms per day. But this was not conceded by the company's experts who maintained that neither these water gas sets nor the coke plant nor the holders had the effective capacity at which they were rated by the Commission, and that all of the thirteen water gas sets at Stations A and B and the coal gas retorts should be included in the rate base along with the coke plant. On the other hand, the city asserted the eight water gas sets at Station A together with the coke plant and holders were sufficient for all emergency purposes, thereby eliminating all the machinery at Station B.

[11] 33. As to the capacity of the accepted water gas sets, there was a dispute concerning the number of "runs" of gas they could turn out in a day, but they actually had made as many runs as the Commission figured. However, Mr. Brockhoff, the Commission's engineer, admitted all these sets would be needed in an emergency, and that, if one of them should break down, he would "get down and pray." Then he continued: "More equipment would help, if you had any more good operating equipment. Perhaps they should have more, possibly another water gas set. I would put in an 11-foot set, if I were putting one in.

That would be my reserve." This amounts to a concession that the company was entitled to another good-sized water gas set in its rate base, if it had one that was operable. Now, the company did have one 10-foot water gas set, No. 3, at Station B which was operable, and which was rejected by the Commission. This set, as already stated, was installed in 1902. Whether it would be practical to include it in the operating equipment at Station B along with Sets Nos. 1 and 2, which were retained by the Commission, is an engineering question we are unable to determine, and we therefore leave undisturbed the Commission's conclusion excluding it, especially in view of the implications in Mr. Brockhoff's testimony and the fact that the company had not used it since 1927.

34. With reference to the capacity of the coke plant, the determinative factor was how much oil still gas could be obtained from the refineries in an emergency to enrich its output. The company's expert took as a basis for his figures on this point a 5-day period in February, 1934, when only a comparatively small amount of oil gas was obtainable. The Commission held he should have figured the average daily supply available during the whole of that month. Further, Mr. Brockhoff testified that in case of an extraordinary demand, occasioned by extreme cold weather or the like, the company need not keep the heating value of its gas up to the standard level of 800 B.T.U., but could furnish gas of any necessary lower heating content that would burn in consumers' appliances—and the Commission seems tacitly to have adopted that view.

[12] 35. Finally, concerning the gas holders. It will be remembered the Commission held the company's useful gas-producing machinery has a 24-hour capacity of 233,000 therms. The anticipated maximum day's requirement is (or was) 270,000 therms. This leaves 37,000 therms to be supplied by the holders. But the holders merely store gas produced by the machines and do not themselves generate it. Therefore, if the daily consumption of gas should exceed the 233,000 therm capacity of the machinery, the supply in the holders would finally be exhausted. Mr. Brockhoff testified on cross-examination that this would occur if there were four or five successive days with the temperature ranging about zero. But the Commission held, inferentially, that this was an extreme contingency which need not be taken into account in view of the fact that there was no reasonable likelihood of a concatenation of untoward happenings such as a breakdown of the machinery, failure of the natural gas supply for a period of four or five days, and a spell of extremely cold weather during the same time. There was, however, undisputed evidence that St. Louis is a place of extreme temperatures and that very cold weather has continued for as long as was hypothesized in the above testimony. This, again, raises a close question of fact on which we must defer to the finding of the Commission. But it is apparent that their report goes to the verge of safety for the gas-consuming public and, furthermore, subjects consumers to the possible necessity of having to use an inferior grade of gas in emergencies, if the assumption is correct that as much as 270,000 therms will be required on peak days.

36. From our conclusion on this issue it follows that the Commission's deduction of $1,900,745, representing nonused and useful plant and general equipment, from the $7,521,544 estimated reproduction cost of the whole thereof, leaving a valuation of $5,620,799 upon the used and useful part of the plant and general equipment, must stand. This makes the reproduction cost of the company's used and useful structural property $31,154,147, as shown in the table at the beginning of this opinion.

37. It also follows that the Commission's allocation of $1,335,076 of the company's real estate as nonused and useful, leaving a valuation of $1,749,944 upon the used and useful portion, is upheld. Including this land and the right of way with the structural property, the valuation of the company's used and useful physical properties (except material and supplies, which will be considered later) totals $32,910,959.

General Overheads

[13] 38. *Preliminary organization, etc.* For preliminary organization, legal, administrative, and incidental expenses the Commission's report allowed 2 per cent on the $31,154,147 estimated reproduction cost of the company's used and useful structural property, making, in round numbers, $623,000. One of the company's experts advocated an allowance of 2½ per cent and the other 4½ per cent. The city's expert recommended 1 per cent. All of these estimates necessarily were judgment figures. The company does not complain on this appeal of the Commission's allowance on this item, but the city does, asserting that it ascertained the several amounts of money required for these purposes and then determined the percentage, which proved to be 1 per cent. But we concur in the Commission's finding that the city's estimate was too conservative, and approve the Commission's figure.

[14] 39. *Engineering and superintendence.* On this item the Commission's report found that an allowance of 4 per cent was sufficient, eliminating the coke plant on which the Koppers Company had already included 6½ per cent for engineering, in its appraisal, and also excepting furniture and general equipment. On the used and useful structural property this came to $1,014,800. The recommendation of the Commission's engineers was only $66,000 in excess of that figure. The city estimated 3½ per cent, but does not complain in its brief of the Commission's finding. The company, however, does object strenuously. One of its experts used various percentages on various parts of the structural property, the composite percentage being about 6 per cent and the total amount on the used and useful part thereof figuring a little over $1,800,000. The other expert's estimate was a little below $1,800,000. It was also proved that the Commission had usually, in fact recently, allowed 5 per cent as a general overhead for engineering and superintendence. A large number of public utility reports are cited wherein that percentage was used.

40. One of the Commission's engineers, in defending the 4 per cent allowance, stressed as his reasons: That so much of the structural property of the company—all of the water gas sets—were built by contract and that

the engineering work was done by the contractor; and that in theory on a reproduction new cost basis the whole property would be rebuilt as one job and not piecemeal, thereby lowering the engineering outlay. At the same time he admitted the company's engineers would have to select the machinery purchased, determine where it should be installed, and see that the contract was performed; and that all reproduction cost appraisals proceed on the theory of rebuilding all the property new as one project. He further said the company's property was good and well built, and that he was informed it was rendering good service. He conceded 5 per cent was a common allowance and added: "I think that it could be adopted down here."

41. The other expert gave as his reason for allowing only 4 per cent for engineering that a considerable part of the construction work on the company's property, such as the installation of the mains, services, and meters, does not require as much engineering work as would the installation of complicated machinery. That fact is emphasized by the Commission in its report. He also said the 6½ per cent overhead for engineering and superintendence which the Koppers Company included in the appraisal of the coke plant would bring up the average for all the structural property to 4½ per cent. But that statement was based on figures of engineers for the Commission which the Commission did not accept. On the Commission's valuation of $31,154,147 for the used and useful structural property, less $745,128 for furniture and general equipment excluded, the addition of the $280,750 overhead for engineering allowed by the Koppers appraisal would still leave the composite percentage below 4½ per cent.

42. This witness could recall only one case where less than 4 per cent had been allowed, and that was in the building of a small plant in Parsons, Kan. In the St. Joseph Water Company Case, *supra,* No. 6851, pp. 28, 59, the Commission's engineers and the company's engineers agreed a proper overhead allowance for engineering and superintendence was 4.95 per cent and the Commission so found. In that case nearly 56 per cent of all the water company's structural property consisted of mains, services, and meters; and these were for water service—not gas service, where a greater degree of care is required to confine the poisonous and inflammable gas as has already been pointed out. That report and order were made on August 25, 1933, while the appraisal in the instant case was going on. We think the allowance of only 4 per cent for engineering and superintendence was inadequate. On the basis of a 5 per cent allowance this would make a difference of about $253,700 in favor of the company.

[15] 43. *Taxes during construction.* All the parties assumed it would take at least two calendar years to reproduce the company's gas properties and that June 1st, the annual assessment date under § 9746, Rev. Stats. Mo. 1929 (Mo. Stats. Ann. § 9746, p. 7867), would twice occur during that period. This time estimate was adopted by the Commission. The calculations of the company's two experts, adjusted to cover only the property which the Commission accepted

as used and useful, would fix the amount of the taxes at about $687,000 for one, and about $530,000 for the other. On the same basis the figures of the Commission's engineers would be about $456,000. The city's estimate for these taxes was $155,000, computed on its valuation of the property it conceded should go into the rate base.

44. The Commission's allowance for taxes during construction was $173,000. Its report contains a 7-page discussion of this item. All property subject only to manufacturers' and merchants' tax was excluded because that tax would not be assessed until the plant began operations. Automobiles, furniture and fixtures, cash, materials, and supplies also were excluded on the theory that they do not become a part of the set-up until the end of the construction period. This left subject to taxation only land, structures, holders, mains, services, and meters. But, inasmuch as all of these except the land were worn or depreciated to a then condition 88 per cent of new (as we shall presently see), and the taxes at the time of the appraisal were based on that condition, and since on reproduction the property would be new and would be assessed at its consequent greater value, therefore the Commission assumed the tax assessment on the property reproduced new would bear the same ratio to the then current assessment as the cost of reproduction new bore to the reproduction cost less depreciation, or, in other words, to its value in its then depreciated condition. This resulted in an increase of about 13.64 per cent in the then existing tax assessment on the above structural property.

45. But the Commission went further. Presumably because the valuation date fixed for the appraisal was July 31, 1933, the report assumed the 2-year period allowed for reconstructing the property would begin on August 1, 1933. This being true, the first statutory assessment date thereafter, June 1, 1934, would follow in ten months, at which time theoretically ten months' construction work, or ten twenty-fourths of the whole, would have been done. The taxes on this part would be finally due under § 9936, Rev. Stats. Mo. 1929 (Mo. Stats. Ann. § 9936, p. 7981), on December 31st of the next year, 1935. But five months earlier on July 31, 1935, the assumed 2-year construction period would have ended, so that the plant would be completed and commencing operations five months before taxpaying time. On this theory the Commission held with respect to the taxes falling due in the year 1935 that five-twelfths of them should be regarded as operating expense, and that only seven-twelfths should be included in the rate base.

46. The remaining fourteen twenty-fourths of the construction work would be done between the first assessment date, June 1, 1934, and the expiration of the assumed 2-year construction period on July 31, 1935; and the second statutory assessment date, June 1, 1935, would come two months before the period ended. But the taxes based on this second assessment would not be due until December 31, 1936, seventeen months after the plant had been in operation. The Commission held no part of these taxes could be allocated to construction and that they must be charged wholly to opera-

tion. All of the foregoing resulted in admitting into the rate base only 30.7 per cent of the taxes accruing on the reproduced property during construction.

47. We think this was not an equitable disposition of the matter. *All* the taxes (except for the final two months' construction work) would be assessed before the expiration of the assumed 2-year construction period; *none* of them would be due until after it expired. And yet the Commission did not treat them all alike. It singled out seven-twelfths of the taxes maturing in 1935 and charged them to construction because seven months of that year would have elapsed before the plant was in operation. The rest of the taxes for the entire construction period are excluded.

48. Why pick out the calendar year 1935 and allocate to construction only a fractional part of the taxes maturing that year representing the portion of the year before the plant was in operation? We can see only one colorable reason for it, and that would be on the theory that the taxes falling due each year are to be considered a charge against the operating revenues for that year regardless of when they became a liability. That plan might work out reasonably well after the plant had become a going concern and the earnings of each successive year could be utilized to pay taxes incurred the year before. It seems to have been the Commission's theory, for the report says its computation is "in accordance with the practice of the Laclede Company." But such a practice cannot fairly be applied to an assumed reproduction new. The utility would be just starting out. During the two years of construction the taxes would be running and attached to the property as a liability but the plant would not be earning anything. As a matter of fact, many construction costs, though concededly chargeable to the capital account, actually might not be paid until after operations began. In the instant case nearly 70 per cent of these taxes are left to be discharged out of earnings paid by consumers, though the plant was not ready to give service while they were accruing. They certainly were a capital outlay, and should be charged either to construction or to working capital. The Commission's accountants, Messrs. Ross and Roberts, testified they should be included in the construction account. If that had been done, the account would have been increased about $600,000, the company's brief says.

49. *Rent on leased property.* The company had a 99-year lease on the ground on which its office building stands. The Commission conceded that on a reconstruction of its properties the company as a part of its overhead expense would have to pay rent on this land, and would be entitled to interest on such payments to the end of the 2-year construction period, and also to credit for taxes paid. These were allowed in the aggregate sum of $35,150, and there is no controversy about it.

50. *Interest during construction.* For interest on funds used during the assumed 2-year period of reconstruction the Commission allowed $2,136,900, this being on a 6 per cent basis. The company's experts estimated a greater amount because they used a higher interest rate. However, the company in its brief does not seriously

complain of the Commission's allowance. The city's expert contended 5 per cent would be a proper interest rate, but the city's brief does not elaborate on that contention. We pass it without further discussion.

51. *Summary as to physical property and general overheads.* As shown thus far, the valuation put by the Commission on the company's used and useful land was $1,749,944; on right of way, $6,868; and on structural property, $31,154,147. The aggregate allowed by the Commission for general overheads was $3,983,150, making the total for physical property and overheads, $36,894,109. But, as pointed out in the last few paragraphs, the Commission's allowance for engineering and superintending was inadequate about $253,700, though we do not attempt to determine the precise percentage or amount by which it should be increased. Also, as we have just held, the allowance for taxes during construction should be increased —the company contends as much as $600,000.

Accrued Depreciation

52. Not only did the Commission's report reject a part of the company's property as not used or useful; it also scaled down its valuation of the part which was admitted into the rate base on the theory that it had depreciated in value. This depreciation was estimated in percentages, first applying such separate percentages to separate classes or items of property as seemed justified by inspection, experience, history, and performance, and then determining the composite percentage for the whole. The cost of reproduction new reduced by this latter percentage was taken as evidence of the value of the used and useful property in its condition on the valuation date.

53. It was conceded by all parties that land and working capital should not be depreciated, and they were not. The company's two experts did not depreciate the general overheads; the city's expert did; and the Commission's engineers also depreciated all the general overheads, save the item for preliminary organization, legal, administrative, and miscellaneous expenses. The Commission in its report followed the same plan except that it further exempted from depreciation the item for taxes during construction. All the parties conceded the structural property should be depreciated, but disagreed as to the amount. In ascertaining the proper percentage of depreciation, five questions seem to be involved: (1) How much had the structural property depreciated; (2) in estimating that depreciation, should we consider only wear and tear, deterioration, and, generally speaking, diminishment in value from use, or should age, obsolescence, and other factors independent of use also be considered; (3) should all the general overheads as well as the structural property be depreciated; (4) in fixing the rate base should accrued depreciation be deducted from original, historical cost, or from the current cost of reproduction new; (5) and should the cost of reproduction be reduced by the percentage of depreciation, regardless of the fact that the company has not through the years built up a depreciation reserve out of earnings large enough to offset the accrued depreciation? We take up these questions in their order.

[16] 54. The Commission in its report found that the composite percentage reflecting the condition of the structural property was 88 per cent, meaning it had depreciated 12 per cent from new. Reducing by that percentage the $31,154,147 valuation which the report had placed on the used and useful structural property reproduced new gave $27,415,649 as the value of the property on the valuation date, July 31, 1933. The report states the Commission reached that conclusion in part from a consideration of Exhibit 83, offered in evidence at the hearing, which shows the composite condition percentages estimated by the Commission's engineers and the experts for the company and the city.

55. The report attempts to set out those percentages, as they appear in the first column of the table below. However, the figures thus set out are not as they actually appear in the exhibit. The exhibit figures are correctly shown in the second column of the table below, though there is not a great deal of difference between the two columns. But the city's brief points out that neither the Commission's figures nor the exhibit figures are correct because both sets are computed on footings which include *valuations of the land and right of way, spare parts and records,* and not valuations of the structural property alone. Neither the land nor right of way are subject to depreciation, and the spare parts and records were not admitted by the Commission into the rate base at all as separate items. The inclusion of the estimates for these items in the footings had the effect of increasing the condition percentages. The figures showing the true percentages, with the four items eliminated, as given in the city's brief, appear in the third column of the table below:

	Commission's Report	Ex. 83	City's Brief
Commission engineers	84.8%	85%	82.9%
First company expert	89.8	89.7	88.2
Second company expert	90.2	90.4	88.9
City's expert	81.3	81.1	79.4
Average	86.525	86.55	84.85

56. An examination of Exhibit 83 shows the city's contention is correct, and the question therefore arises as to how the Commission's finding should be adjusted in view of that fact. It will be seen that the first column of figures in the above table, mistakenly shown in the Commission's report as having been taken from Exhibit 83, averages 86,525 per cent. But the Commission's report says it considered not only the several percentages making that average, but also "the reasons offered in support of each." As a result of that the Commission concluded the proper figure representing the composite percentage condition of the structural property was 88 per cent instead of 86.525 per cent. In other words, the Commission's finding increased the above average by 1.7 per cent thereof. Applying the same percentage of increase to the 84.85 per cent average of the various engineers' estimates shown in the third column of the above table according with the city's contention would give 86.3 per cent as the true figure representing the condition of the structural property on the valuation date, which would mean that the depreciation has been 13.7 per cent instead of 12 per cent as found by the Commission. From this it follows that the reproduction less depreciation value of the used and useful structural property, amounting

to $27,415,649 under the Commission's report, should be lowered to $26,886,029.

57. The city asserts in its brief that the investigation made by its experts to determine the condition of the company's property was more thorough and their knowledge of the history of the property was more extensive than that of the company's and Commission's experts. The Commission's report says the different conclusions reached by the several experts were due primarily to differences of opinion rather than to differences in the principle or method of determining the depreciation. That appears to us, also, to be true. Most of the figures on the accrued depreciation given by the various engineers were judgment figures, and generally they inclined toward the side of the case with which the witness was aligned. There are, however, some instances where the city's experts were less thorough than the other experts; as, for instance, in estimating the accrued depreciation on the mains, where the city's expert made no attempt to base his conclusions on actual inspection. We think the Commission made no mistake in taking the view of the evidence that it did.

[17] 58. The city also maintains that, in estimating the accrued depreciation, obsolescence, inadequacy, and other like factors independent of actual use, wear and tear, should be taken into consideration. We do not understand that the company disputes that proposition. At any rate it is well established by the precedents such as Department of Public Works v. Seattle Gas Co. (Wash. 1934) 3 P.U.R.(N.S.) 433, 464, where it is said accrued depreciation is the "portion of the useful service life which has expired;" and Lindheimer v. Illinois Bell Teleph. Co. (1934) 292 U. S. 151, 167, 78 L. ed. 1182, 1192, 3 P.U.R.(N.S.) 337, 347, 54 S. Ct. 658, in which the term is defined as follows: "Broadly speaking, depreciation is the loss, not restored by current maintenance, which is due to all the factors causing the ultimate retirement of the property. These factors embrace wear and tear, decay, inadequacy, and obsolescence."

59. But it is further contended by the city that the company's two experts did not consider inadequacy and obsolescence in estimating the accrued depreciation, and that the Commission did not do so in its report. In this the city is mistaken. As already stated, the Commission did not restrict itself to a consideration alone of the several condition percentages purportedly estimated by the company's, the city's, and the Commission's experts as set out in its report, but also took into account "the reasons offered in support of each." The Commission's engineers and the city's experts expressly testified that they included obsolescence and inadequacy in making their estimates. And so did both the company's experts when the obsolescence "is fully consummated" and the inadequacy "is evident," as one of them said, or when such obsolescence and inadequacy "have accrued in fact," as the other one states. Apparently they did not go as far as the other experts, and meant by this that accrued depreciation should not be charged against any item of property on account of obsolescence or inadequacy unless and until it is actually re-

tired from service for that reason (see discussion of depreciation of overheads in second paragraph below). But the Commission did not follow that theory, and we think its report is unexceptionable on the grounds here assigned.

[18] 60. The Commission's report, as we have said, also depreciated all the general overheads except the item of preliminary organization, administration, legal and miscellaneous expenses, and the item for taxes during construction. The theory on which the general overheads were depreciated was that they really would be a part of the cost of reproducing the property and each item thereof new, and should be depreciated like the labor or material cost or any other element entering into the outlay for replacing the property. The theory on which preliminary organization, etc., and taxes were not depreciated was that while there may have been expenditures for these when the property was built, yet they would not occur again on reproduction anew.

61. The company contends none of the general overheads should have been depreciated. The theory of its experts was that general overheads attach to the property as a whole when it is built or reproduced and represent services and expenses incurred in creating the entire project and making its separate minor parts coördinate with each other in one unit; that these overheads bear no direct relation to the individual parts of the plant severally; and that, so long as a given piece of machinery or other like chattel (no matter how much it may have deteriorated) remains an integral part of the plant and is giving service, the general overheads should not be depreciated on account thereof, this being done only when a substantial item of property is actually retired from service. The decisions relied upon to support this view are Galveston Electric Co. v. Galveston, 272 Fed. 147, 168, P.U.R.1921D, 547, 577; Id., 258 U. S. 388, 398, 66 L. ed. 678, P.U.R. 1922D, 159, 168, 42 S. Ct. 351, 355.

62. We think these cases are not authority for the company's contention. They do not deal with questions of *accrued* depreciation, but discuss the matter of allowing an annual deduction from revenues to create a depreciation reserve covering *future* depreciation. There are many precedents holding general overheads should be depreciated along with the property itself, because they enter into the cost thereof and therefore of each unit making up the whole. See Winona v. Wisconsin-Minnesota Light & P. Co. (1921) 276 Fed. 996, 1004, P.U.R.1922C, 461; Re West St. Louis Water & Light Co. (Mo.) P.U.R.1922E, 805, 826, and authorities there cited. Indeed, there is some reason for doubting the correctness of the Commission's order in this case exempting from accrued depreciation charges the general overheads for preliminary organization and taxes; but we leave it undisturbed for the reasons given by the Commission.

63. We should add that in depreciating the general overheads for engineering and superintendence and for interest during construction the Commission estimated the accrued depreciation on the same basis as for the structural property. Inasmuch as we have held the accrued depreciation on the structural property should have

been figured at 13.7 per cent instead of 12 per cent, therefore the same should be done with these overheads. The effect of these changes on the total footings will be stated presently. The general overhead for rent, interest, and taxes on the leased office building was depreciated by the Commission 15 per cent and is not questioned.

[19–21] 64. The city makes the point that "accrued depreciation should be deducted from *original* cost in ascertaining the rate base, because it is the property, and not the cost thereof, which is depreciated, just as it is the value of the property, and not the cost thereof, that may not be confiscated." (Italics ours.) In support of this rather abstract contention, rulings of Commissions and court decisions are cited which do not sustain it. The object of the inquiry is to find the fair value of the company's property for the purpose of fixing a rate base. In doing that both the original cost of the property and the present cost of reproduction should be considered. Dayton Power & Light Co. v. Ohio Pub. Utilities Commission (1934) 292 U. S. 290, 310, 78 L. ed. 1267, 1281, 3 P.U.R.(N.S.) 279, 294, 54 S. Ct. 647, 657; Los Angeles Gas & E. Corp. v. California R. Commission, 289 U. S. 287, 307, 77 L. ed. 1180, P.U.R.1933C, 229, 242, 53 S. Ct. 637, 644; Minnesota Rate Cases (1913) 230 U. S. 352, 452, 57 L. ed. 1511, 1563, 33 S. Ct. 729, 761, 48 L.R.A.(N.S.) 1151, 1188, Ann. Cas. 1916A, 18, 49. From the fair value of the property new, as thus ascertained, the amount of accrued depreciation (usually estimated in percentages as in the present case) is deducted. There is no more reason for saying that deduction should be made only from the original, historical cost than there is for saying the fair value new should be determined only on that basis. We rule this contention against the city.

65. Finally, the company urges that the cost of its property new should not be reduced by the amount of accrued depreciation because its depreciation reserve built up through the years out of earnings is not large enough to cover it. And it asserts that, if this claim be denied, then it should be permitted to amortize the depreciated or discarded property for which it stands uncompensated. These contentions are so closely related to the issues respecting rates and the annual allowance for depreciation that we reserve our discussion of them until we come to the latter issues.

Other Elements of Value

66. *Materials, supplies, and working capital.* The Commission's engineers estimated that the company requires in the operation of its gas property $600,000 cash working capital and $804,517 in material and supplies, and therefore recommended an allowance of $1,404,517 for these purposes. This did not include anything for taxes which would become a liability during reconstruction new but would not accrue until after operations began. One of the company's experts testified the amount needed would be $2,000,000; the other said $2,278,848. Mr. White, vice president of the company, stated the requirement for cash working capital alone in 1935 would be $1,549,717. The figure given by the city's expert was $1,204,517. After discussion of

these five estimates and pointing out certain errors in them, the Commission report fixed the allowance at $1,600,000. We affirm that finding, contingent upon the making of a proper allowance for taxes during construction in the construction account.

67. *Additions and betterments.* The total net additions to the company's gas plant from the valuation date, July 31, 1933, to June 30, 1934, during the hearing, was $161,798. There is no controversy about that.

68. *Upward price trends and going value.* Recapitulating the changes we have made in the allowances authorized by the Commission's report and set out in the table at the beginning of this opinion, showing the fair value of the company's used and useful gas properties. Increasing the accrued depreciation on the structural property from 12 per cent to 13.7 per cent results in lowering the Commission's valuation of $27,415,649 to $26,886,029, a reduction of $529,620. The Commission allowed a 4 per cent general overhead for engineering and superintendence amounting to $1,014,800. We have held earlier in the opinion that on the basis of the facts in the record this overhead should be increased from 4 per cent to about 5 per cent, which would add $253,700 thereto. But we have also increased the accrued depreciation on this allowance from 12 per cent to 13.7 per cent, which, on the above basis, would make a net difference of $201,691 in favor of the company. We have also increased the Commission's $173,300 allowance for taxes during construction by about $600,000. But both these holdings are based on statements in the company's brief. They are tentative and for the purpose of illustration, and are subject to further examination by the Commission upon the remanding of the cause. We have further increased the accrued depreciation on the Commission's overhead allowance of $2,136,900 for interest during construction from 12 per cent to 13.7 per cent, which results in a decrease of $36,327 in that item. The several estimates based on the Commission's report and those authorized by this opinion are shown more in detail in parallel columns in the table following. The changes made by us affect by less than $236,000 the Commission's finding that the fair value at the time of the hearing of the company's property used and useful in gas operations was $39,000,000; and they fix the amount allowed by the Commission (though it stated no figure in its report) for upward price trends and going value at about $4,500,000. The table is as follows:

	Commission's Report	This Opinion
Land	$1,749,944	$1,749,944
Right of way	6,868	6,868
Structural property ..	27,415,649	26,886,029
Preliminary organization	623,000	623,000
Engineering and superintendence	893,024	1,094,715
Taxes during construction	173,300	773,300
Rent, etc., leased property	29,878	29,878
Interest during construction	1,880,472	1,844,145
Working capital, etc.	1,600,000	1,600,000
Additions	161,798	161,798
Price trends, going value	4,466,067	4,466,067
Fair value	$39,000,000	$39,235,744

69. The Commission's finding of fair value showing it considered price trends and going value was as follows: "Having given careful consideration to the fair market value of land, the

estimated investment, cost of reproduction and cost of reproduction less depreciation of the property used and useful at the present time in serving the consumers in St. Louis, the requirements to serve these consumers for a reasonable period in the future, the proper allowance for general overheads, the trend in construction costs, the working capital, both cash and materials and supplies, the additions and betterments to June 30, 1934, and all intangible elements of value inherent in this property treated as a going concern with its business attached, necessary records and trained personnel, we are of the opinion that the present fair value of the property used and useful is $39,000,000."

[22] 70. The law is well settled that in determining the value of the company's property the Commission was bound not only to consider prices and wages prevailing at the time of the investigation but also to make an honest and intelligent forecast as to the probable price and wage levels during a reasonable period in the immediate future so far as discernible. McCardle v. Indianapolis Water Co. (1926) 272 U. S. 400, 410, 71 L. ed. 316, 324, P.U.R.1927A, 15, 47 S. Ct. 144. There was evidence for the company that between July 31, 1933, and June 1, 1934, material prices had so increased that the reproduction cost of the property was 8.6 per cent higher. The city's expert conceded there had been a rise in prices of 5.3 per cent, but he said it might be only a normal fluctuation. There was also evidence that the purchasing power of a dollar had dropped. Undoubtedly there was substantial evidence justifying an allowance of from $1,500,000 to $2,000,000 on this account.

[23, 24] 71. Speaking of going value, the United States Supreme Court said in Los Angeles Gas & E. Corp. v. California R. Commission, 289 U. S. 287, 313, 77 L. ed. 1180, P.U.R.1933C, 229, 245, 53 S. Ct. 637, 647: "This court has declared it to be self-evident 'that there is an element of value in an assembled and established plant, doing business and earning money, over one not thus advanced.'" In Dayton Power & Light Co. v. Ohio Pub. Utilities Commission, *supra,* the court observed that going value, when it exists, may have a place in the base upon which utility rates are computed, though it is not something to be read into every balance sheet as a perfunctory addition.

72. The appellant company has extensive gas generating, storing, and distributing equipment, some new and some old, which the Commission found to be worth over $34,500,000, independent of price trends and going value. It and its predecessors have been operating since 1857 in St. Louis, a thriving city of more than 800,000 population, and it now exclusively occupies that field in gas service. In 1933, the last year before the appraisal started and during the lowest period of economic depression, it had over 180,000 meters in service and nearly 31,000 additional meters connected on customers' premises but not in service. When the properties of the company were valued by the Commission in 1926 in Aluminum Goods Mfg. Co. v. Laclede Gas Light Co. 16 Mo. P. S. C. R. 114, 196, P.U.R. 1927B, 1, the going value was fixed at $5,818,000; and the Commission ad-

hered to that valuation when the question came before it again in Re Laclede Gas Light Co. 17 Mo. P. S. C. R. 206, 222, P.U.R.1929A, 561. On a review of that order in State ex rel. St. Louis v. Public Service Commission (1931) 329 Mo. 918, 946, P.U.R.1932A, 305, 47 S. W. (2d) 102, 114, this court criticized the allowance and said the Commission should find it to be "appreciably less." One of the company's experts in the present case testified $5,000,000 would be a fair allowance for going value, and the other said $6,000,000.

73. The city in its brief "takes the position that all elements of value have been reflected when the property devoted to the public service is valued as used and useful, coördinated property in a gas system and not as isolated, unrelated pieces of equipment and property which are not part of a used and usable whole." It also argues that "no additional consideration or specific allowance for going value should be included in the rate base when the property has been valued, not as scrap, but as a functioning, coördinated plant in successful operation, and when there have been included all proper overheads and working capital, plus, in this case, $1,000,000 for consolidation. Especially is this so when all claimed costs and expenditures have been charged to operation."

74. The city does not point out wherein $1,000,000 has been allowed in this case for consolidation and it does not appear in any of the figures from which we have taken the table set out at the beginning of this opinion. Neither is there anything to show that "all claimed costs and expenditures have been charged to operation." Of course, it is true that, where the physical property has been appraised as an assembled plant doing business and earning money, no additional allowance should be added for going value because it is already included. This was held in Columbus Gas & Fuel Co. v. Ohio Pub. Utilities Commission (1934) 292 U. S. 398, 411, 78 L. ed. 1327, 1335, 4 P.U.R.(N.S.) 152, 161, 54 S. Ct. 763, 91 A.L.R. 1403, where the United States Supreme Court said: "The record justifies a holding that it [going value] was reflected in the other items and particularly in the appraisal of the physical assets as part of an assembled whole." Citing Hardin-Wyandot Lighting Co. v. Public Utilities Commission, 118 Ohio St. 592, 603, P.U.R.1928D, 560, 569, 162 N. E. 262, 263. The city attaches significance to the fact that the Supreme Court of the United States in the above quotation cited this Ohio Case, because there the Ohio supreme court was construing Des Moines Gas Co. v. Des Moines, 238 U. S. 153, 171, 59 L. ed. 1244, P.U.R.1915D, 577, 35 S. Ct. 811, and pointed out that in the Des Moines Case the plant of the utility involved was valued, "not upon the mere salvage value of its separate units, but was given a valuation based upon the reproduction cost of the whole new, less existing depreciation of the complete plant, together with additions for organization, interest, engineering, law expenditures, taxes, and general expenses during construction, and contingencies and omissions."

75. We do not understand that the United States Supreme Court in the Columbus Gas & Fuel Company Case said, or intended to say, that going

value would not be allowed in the valuation of a utility for rate-making purposes unless the physical plant had been valued only as junk or salvage. For in Denver v. Denver Union Water Co. 246 U. S. 178, 191, 62 L. ed. 649, 661, P.U.R.1918C, 640, 650, 38 S. Ct. 278, 282, the same court said: "It involves a practical contradiction of terms to say that property useful and actually used in a public service is not to be estimated as having the value of property in use, but is to be reckoned with on the basis of its 'junk value.'" And in that case the court went on further to say: "In the present case, the master expressly declared that his detailed valuation of the physical property and water rights included no increment because the property constituted an assembled and established plant, doing business and earning money." A plant might be valued as used and useful property with the allowance of all proper, direct, and general overheads, and still not be doing business and earning money.

76. In the instant case the Commission's engineer, Mr. Roberts, expressly declared that in appraising the physical property no allowance was made for going value. He said: "In our prices we have taken the actual labor, actual cost of material in the plant, all that sort of thing, the actual expenditures by way of general overheads, and added them together for the final answer. There is no allowance in them for any other item. I did not consider it to be a part of the engineer's job to determine 'going value.' Our instructions are to give no consideration to 'going value.' We give no allowance for it, and submit no report on it."

From this it follows that the city errs in contending going value had already been included in the valuation of the physical property. An estimate of from $1,500,000 to $2,000,000 for price trends being justified, as we have already held, this leaves out of the $4,466,067 allowed for intangibles about $2,500,000 to $3,000,000 to be charged to going value. Without doubt these two items together amply warrant the Commission's finding.

Reasonable Return

[25, 26] 77. *Annual depreciation allowance.* The Commission's report and order authorized and directed the company to collect and set aside as an annual allowance for depreciation the sum of $500,000, stating it amounted to 1½ per cent of the cost of reproduction of the company's depreciable gas property; and also a like percentage of the cost of additions and betterments subsequent to June 30, 1934, all these prior to that date having been included in the appraisal. If $500,000 is 1½ per cent of the cost of the depreciable property, then the whole cost thereof would be $33,333,333. The depreciable property includes the used and useful structural property with all depreciable general overheads thereon, and excludes the land and right of way. The Commission evidently has made a very liberal approximation, since this property totals $34,502,795 (nearly $1,200,000 more than the $33,333,333 on which the percentage was figured), and 1½ per cent thereof would be $517,542, which is $17,542 per year more than the Commission allowed.

78. The Commission arrived at the annual allowance of 1½ per cent on

the theory that in its former valuation it made a like percentage allowance (Re Laclede Gas Light Co. *supra*), and found the amount in the company's depreciation reserve, as of December 31, 1927, to be $2,500,782. In the instant appraisal the Commission's accountants adjusted that reserve by figuring it up to September 30, 1933, at the same percentage on the *investment* cost of the depreciable property and found the reserve had increased $344,000 in round numbers. This investment cost, as we figure it, would be $33,192,860.50, less $1,715,522.50 for land, making about $31,480,000. The Commission reasoned that, if this annual allowance of 1½ per cent on the investment cost of the property would thus adequately provide for annual replacement requirements, then the same percentage on the *reproduction* cost of the same property would be amply sufficient. But it will be observed the $500,000 annual allowance actually is based on a valuation about half way between the investment cost and the reproduction cost. It should be based on fair value, not original cost. United R. & Electric Co. v. West, 280 U. S. 234, 253, 74 L. ed. 390, 410, P.U.R.1930A, 225, 50 S. Ct. 123.

79. The city's expert asserted the annual depreciation allowance should not exceed $400,000, and said he based his estimate on a study of the company's actual experience in making retirements of its gas property over the preceding ten years. In its brief the city also assails the company for inconsistency in contending the *accrued* depreciation (which must be deducted from the rate base) is low, and at the same time asking for a high annual allowance for *current and future* depreciation (which is included in the rates collected from consumers). It is pointed out that when the case was here before, 329 Mo. 918, 939, P.U.R. 1932A, 305, 47 S. W. (2d) 102, 110, this court stressed the holding in the dissenting opinion of Commissioner Calfee that there is an obvious relation between accrued depreciation and the annual depreciation allowance.

80. But, so far as that is concerned, the city is guilty of the same inconsistency, for it is claiming the accrued depreciation is high and that the annual depreciation allowance should be low. Furthermore, while it is perhaps true that there is some connection between the two, and that past experience is generally the best guide (except as to obsolescence), yet there is a difference. When a new piece of equipment is installed in a plant, the observable depreciation is not uniform. It will continue in service for a considerable time without apparent deterioration and then toward the end of its life breakdowns and repairs occur more frequently until it has to be retired. On the other hand, the annual allowance for depreciation is anticipatory and runs along the same each year until at the end of the useful life of the property the cost or value thereof will have been absorbed. As was said in Clark's Ferry Bridge Co. v. Pennsylvania Pub. Service Commission (1934) 291 U. S. 227, 239, 78 L. ed. 767, 794, 2 P.U.R. (N.S.) 225, 231, 54 S. Ct. 427, 431, "it is recognized that accrued depreciation, as it may be observed and estimated at a given time, and an appropriate allowance of depreciation ac-

cording to good accounting practice, need not be the same."

[27] 81. Looking at the other side of the question: One of the company's experts testified the annual allowance for depreciation should be 2.22 per cent, coming to $744,725, and the other fixed the amount at $750,000. These estimates were bottomed, of course, on their theories as to the valuation of the property, the part that should be included in the rate base, the rate of depreciation, and the parts that were depreciable. In its brief the company cites numerous orders of the Commission in other cases allowing a higher percentage for the depreciation annuity. These ranged as high as 3½ per cent, but almost all were for small companies. In Re Kansas City Gas Co. (1924) 14 Mo. P. S. C. R. 312, P.U.R.1925A, 653, and Re Springfield Gas & E. Co. (Mo. 1923) P.U.R.1924A, 613, the allowance was 2 per cent. In Fort Worth Gas Co. v. Fort Worth (1929) 35 F. (2d) 743, P.U.R.1930C, 203, the United States district court for the Northern District of Texas held the allowance should be 4 per cent. In Wichita Gas Co. v. Public Service Commission, 126 Kan. 220, P.U.R.1928D, 124, 268 Pac. 111, the Kansas supreme court affirmed an allowance of 3 per cent. These citations show the allowance varies with the facts of the case. The Commission has twice held on substantial evidence that 1½ per cent is sufficient for the appellant company and we are not warranted in overturning that finding.

[28–31] 82. However, there was evidence for the company that for seven or eight years up to 1929, before it had any substantial house-heating business its gas sales gradually increased and amounted to more than they did in 1933. The table shown in paragraph 26 of this opinion (22 P.U.R.(N.S.) 20, *ante*) shows that fact. In view of that increasing business, the company added about $9,000,000 in new equipment between 1925 and the time of the hearing, mostly before it began to use natural gas in 1931. It was also proven that with the advent of this new heating element changes were necessarily made in customers' appliances at a cost of $500,000, $425,000 of which had not been amortized at the time of the hearing. The further fact was undisputed that, after the company began to mix natural gas in its output and increased the heating content thereof from 600 B.T.U. to 800 B.T.U., it reduced its rates over $600,000 per year pursuant to an order of the Commission, this being about 8.3 per cent of its gross revenues.

83. The company contends that its structural property was all needed to take care of its increasing business before the depression, and that the same therefore should not now be rejected in the appraisal as nonused or useful or marked down in value because of accrued depreciation without some form of compensation, either by making allowance therefor in the depreciation annuity or by amortization, or both, so that any loss, over and above the $2,844,682 in the depreciation reserve at the time of the valuation and the salvage value of the rejected property, may be recouped—this to cover also the $425,000 unamortized cost of change-over in customers' appliances made necessary when the company began to mix natural gas with its

product. As to the land excluded from the rate base, the company concedes tracts which are salable may be disposed of without loss, but insists that where a small, irregular piece has been cut out of the interior of a tract, as being nonuseful, and is unsalable, that it should be compensated for the loss.

84. The city answers, among other things, that the company did not begin to set aside a depreciation reserve until 1907, and that it cannot recoup any resultant losses by charging them up to consumers in the rates exacted now. This contention is, we think, amply sustained by the authorities. As the United States Supreme Court said in Los Angeles Gas & E. Corp. v. California R. Commission, 289 U. S. 287, 313, 77 L. ed. 1180, P.U.R. 1933C, 229, 246, 53 S. Ct. 637, 647: "Deficits in the past do not afford a legal basis for invalidating rates, otherwise compensatory, any more than past profits can be used to sustain confiscatory rates for the future." See, also, Galveston Electric Co. v. Galveston, 258 U. S. 388, 395, 66 L. ed. 678, P.U.R.1922D, 159, 165, 42 S. Ct. 351, 354; Knoxville v. Knoxville Water Co. (1909) 212 U. S. 1, 14, 53 L. ed. 371, 29 S. Ct. 148; Re Jackson County Light, Heat & P. Co. (Mo.) P.U.R.1926D, 737, 752.

85. Another point made by the city is that all the company's gas machinery and equipment rejected by the Commission was so antiquated and had so deteriorated at the time of the appraisal that it was valueless except for junk. It is a fact that the company, itself, had retired some of this property from service, and we have already stated its condition in paragraphs 31–35 of this opinion, and have quoted the testimony of the Commission's engineer, Mr. Brockhoff, when he said, "More equipment would help if you had any more good operating equipment." We also pointed out that it was an engineering question upon which we cannot pass as to whether gas set No. 3 at Station B was fit to be retained in the set up. But, conceding all this machinery had become only junk, it does not necessarily follow that the company was not entitled to the depreciation thereon; and yet, nevertheless, it still remains true that the company cannot charge up past depreciation now, which it failed to provide for at the time.

86. Finally, it is contended by the city that, when the use of oil still gas and natural gas occasioned the retirement from service of a part of the company's gas-making equipment, it constituted an extraordinary obsolescence or supersession due to a change in the science or art of gas making and that the loss must fall on the company, and not on consumers through rates carrying a depreciation or amortization allowance. It is pointed out that this court so held in State ex rel. St. Louis v. Public Service Commission (1931) 329 Mo. 918, 941, P.U.R.1932A, 305, 320, 47 S. W. (2d) 102, 111, where it is said: "The abandonment of property which is never replaced, but is superseded by another instrumentality, as gas lamps by electric lights, or by another agency or company, is an extraordinary supersession. Its loss is 'one of the hazards of the game,' just as the extraordinary increase in values following the war was an unexpected gain.

. . ." On this point the Commission's report (7 P.U.R.(N.S.) at p. 321), says:

"We are aware that in this depreciation requirement we have not provided for unusual retirements of property caused by replacement of the service by another type of service, as in the replacement of gas by electricity for street lighting; the obsolescence of a facility as in the abandonment of the Pintsch gas plant; or by the sudden change either in the art of making gas or the discovery of a different source of supply, as in the introduction of mixed gas or natural gas into St. Louis. The allowance we are making is for the gradual wearing away of the plant. Sudden changes as enumerated above are hazards of the industry and result in a loss to the investor unless the change benefits the consumer by offering him the same service at a lower rate or a better service at the same rate, in which case the superseded property should be amortized out of the rates paid by the consumer.

"In the latter case the consumer benefits by the change and therefore should pay for the change. In the former case where the abandonment does not result in any advantage to the consumer, the loss occasioned by the abandonment must be sustained by the investor. If natural gas had been brought to St. Louis and the consumer, served with straight natural gas at much lower rates than he paid for manufactured gas, it would have been proper to amortize the value of the manufacturing facilities out of the savings. The introduction of natural gas for mixing purposes has not resulted in any appreciable saving to the consumers and the consumer should, therefore, not be charged with any amount for the amortization of the units of property which we have classified as not used in public service at the present time. The supreme court of Missouri in its decision remanding this case to us specifically sets out that no allowance for amortization should be made where the property suddenly goes out of service because of changes in the art. That is one of the hazards of the game."

87. First it should be remembered that the present case does not involve the retirement of the company's Pintsch gas plant, which made a special kind of gas sold to railroad companies at private sale and not under regulation by the Commission. As to the change from gas street lights to electric lights in St. Louis the company's brief treats it as if it was made on the mere whim and caprice of the city without any scientific basis; says there is no evidence in the record that gas is not suitable for street lighting; and asserts that many beautiful cities still use gas for that purpose. In other words, the company asks us to overrule our former decision on this question and to hold it entitled to amortize its retired street lighting equipment. We decline to reopen this question, since we think we can take judicial notice of the fact that electricity very generally has supplanted gas for highway illumination in this country, and therefore hold the company's loss of that business was a true case of supersession.

88. But on the company's use of natural gas for admixture with its manufactured gas the Commission itself does not follow the theory of our

decision when the case was here before. The Commission's report says sudden changes resulting from discoveries in the art of making gas or of new sources of supply are hazards of the industry and the loss must be borne by the investor *unless the change benefits the consumer by offering him the same service at a lower rate or better service at the same rate.* In so holding the Commission was right. Our ruling in State ex rel. St. Louis v. Public Service Commission, *supra,* was based on Public Service Commission v. United R. & Electric Co. 155 Md. 572, 605, P.U.R.1928D, 141, 174, 193, 142 Atl. 870, 882, and the opinion quotes from that case, but the quotation does not give a correct understanding of what the decision held. The point there under discussion was whether extraordinary obsolescence or supersession of a utility's property should be considered in fixing the annual allowance for depreciation, and the Maryland court of appeals held it should not, saying:

". . . ordinary obsolescence is a tangible and concrete thing, for which some allowance should be made in any estimate of depreciation in such property as that operated by the company. Experience infallibly indicates that, as a result of social or economic changes, or *the progress of science and the improvement of mechanical and electrical equipment, some part of the company's property will from time to time become out of date, and unsuited to its present needs, and should be retired.* Such obsolescence is really depreciation, and should be considered in any fair or reasonable estimate of the probable annual depreciation of the company's property. Extraordinary obsolescence, however, is quite another thing, and *by extraordinary obsolescence we mean an extensive supersession of property used for the transmission or the generation of power, or instrumentalities used for the transportation* of passengers. Such obsolescence has seldom occurred in the past, and whether it will occur in the future at all, or, if it does, when it will occur, and how extensive it will be, are all matters of unrestrained speculation and conjecture, and we know of no theory upon which any depreciation allowance could be made to cover it. If it ever does occur, it can be considered by the Commission in the light of actual facts, and such allowance and adjustments made as may be proper under the circumstances, but until it does occur it is entirely irrelevant to any consideration of the proper allowance to be made to cover the anticipated annual depreciation of the company's property."

89. The only parts of this extract which are quoted in our former decision are those we have put in italics. But a reading of the whole paragraph will disclose that what Maryland's highest court held was that changes resulting from social, scientific, and mechanical progress requiring the retirement of equipment ordinarily are to be regarded as obsolescence which must be covered by a depreciation allowance; and that it is only extraordinary, extensive supersession which does not fall within that rule. Obsolescence of that kind, says the decision, is rare, has seldom occurred in the past, and is purely conjectural as to the future. It cannot be provided for in a depreciation allowance because it cannot be foreseen. But the

. . ." On this point the Commission's report (7 P.U.R.(N.S.) at p. 321), says:

"We are aware that in this depreciation requirement we have not provided for unusual retirements of property caused by replacement of the service by another type of service, as in the replacement of gas by electricity for street lighting; the obsolescence of a facility as in the abandonment of the Pintsch gas plant; or by the sudden change either in the art of making gas or the discovery of a different source of supply, as in the introduction of mixed gas or natural gas into St. Louis. The allowance we are making is for the gradual wearing away of the plant. Sudden changes as enumerated above are hazards of the industry and result in a loss to the investor unless the change benefits the consumer by offering him the same service at a lower rate or a better service at the same rate, in which case the superseded property should be amortized out of the rates paid by the consumer.

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court added that "if it ever does occur, it can be considered by the Commission in the light of actual facts, and such allowance and adjustments made as may be proper under the circumstances." (P.U.R.1928D, at p. 174.) This would indicate a view that even extraordinary supersession may be recouped. We are unwilling to hold that consumers can be required to underwrite a utility business which is expiring either because of the avulsive effect of new methods or inventions, or changes in public demands, or extraordinary shifts of population, and the like; but it is well settled that a utility is entitled to earn a return reasonably sufficient to keep it abreast of advancements affecting the business it conducts. As the Nebraska State Railway Commission said in Re Fairfield Teleph. Co. (1917) P.U.R. 1918B, 154, 160: "The constant progress under way in the art of telephony must be considered in providing for depreciation, otherwise the utility will be unable to furnish the patrons with modern service. . . ."

90. There are many examples of this. Thus in Pacific Gas & E. Co. v. San Francisco, 265 U. S. 403, 415, 68 L. ed. 1075, P.U.R.1924D, 817, 44 S. Ct. 537, where a gas company availed itself of recently patented methods of manufacturing gas which reduced the cost of production and rendered part of its equipment obsolete, it was held the company should not be declared to have "worsened its situation for rate-making purposes when it reduced the cost of manufacturing gas"; and that the fair value of the patents should be added to the rate base or prompt recoupment should be allowed for the obsolescence caused by their introduction. And in Kansas City S. R. Co. v. United States (1913) 231 U. S. 423, 452, 58 L. ed. 296, 34 S. Ct. 125, 52 L.R.A.(N.S.) 1, where a railroad had abandoned parts of its roadbed, built in an earlier day when curves were sharper and grades heavier and had relocated it to meet modern traffic requirements, it was held the Interstate Commerce Commission could *require* the company to charge the replacement cost of the abandoned sections to operating expenses and amortize it over a period of years if the charge would unduly burden the revenues of a single year.

91. Amortization allowances have been made in other states to compensate for depreciation or obsolescence occasioned by a change from manufactured gas to natural gas; Santa Barbara v. Southern Counties Gas Co. (Cal.) P.U.R.1928E, 767, 770; Re Southern Counties Gas Co. (Cal. 1920) P.U.R.1921B, 705, 710. The Missouri Public Service Commission in Re St. Joseph R. Light, Heat & P. Co. (1934) 5 P.U.R.(N.S.) 253, allowed a street railway company to amortize in part the value of certain street cars which were superseded by trolley coaches, and in its report cited a number of precedents for that action. Many others are listed in the company's brief here.

92. The Commission's report concedes the company would be entitled to amortize the value of gas-manufacturing equipment retired because of the use of natural gas if it were furnishing straight natural gas to consumers at much lower rates, but holds it cannot be done in this case because the natural gas is used only for mixing purposes and has not resulted in

any appreciable saving to consumers. The writer does not agree to that. As we have stated, when the change over occurred the company reduced its rates in August, 1932, $600,000 per year, which was about 8.3 per cent of its gross revenue. This was $100,000 per year more than the entire $500,000 annual depreciation allowance which the Commission has fixed in its report. It is almost exactly 20 per cent of the $3,035,000 which the Commission is allowing the company for its fair return of 6½ per cent and its annual depreciation allowance, as we shall see in paragraph 100 of this opinion (22 P.U.R.(N.S.) 45, *post*) where it will also appear that the Commission engaged in intricate calculations to save domestic consumers about $349,000, this being only a little more than half as much as the $600,000 saved by the 1932 rate reduction here under discussion. If the company were changing over to natural gas exclusively, it would seem the amount of equipment retired would be considerably larger and the amortization expense heavier.

93. But, even though it be conceded that the value of the equipment retired because of the use of natural gas for mixing purposes can, as a matter of law, be amortized, the company is still confronted with the fact that it failed for many years before 1907 to set aside a depreciation reserve. Part of its present equipment was installed before that time. Some of it has been voluntarily retired by the company. The junk value of the property retired by the company or ordered retired by the Commission is not clear. The company had $2,844,682 in its depreciation reserve at the time of the appraisal. We can see no basis, on the record before us, and on the valuations fixed by the Commission and affirmed in this opinion, for saying the company can now charge to consumers by amortization the value of the property found to be nonused or useful.

[32] 94. The unamortized $425,000 part of the $500,000 cost of changing customers' appliances when natural gas was introduced for mixing purposes stands on a different footing. Likewise under § 5250, Rev. Stats. Mo. 1929 (Mo. Stats. Ann. § 5250, p. 6674), when audits or appraisals of a public utility are made by the Commission, the former must pay the expense thereof. The company states in its brief that at the time of the hearing it was obligated for $224,387 unamortized expenses of this character and contends it should have credit both for it and the change over cost just mentioned in its working capital, which enters into the rate base. We do not understand that such outlays as this should be capitalized and that consumers should pay a return on them forever. Kansas City S. R. Co. v. United States, *supra*. But they may be charged to operating expenses and amortized where necessary, if that has not already been done. Consolidated Gas Co. v. Prendergast, 6 F. (2d) 243, 280 (2), P.U.R.1925B, 773, P.U.R.1925C, 744; Re Pacific Electric R. Co. (Cal. 1921) P.U.R.1922C, 134, 168.

[33] 95. Another item of expense about which there is controversy involves engineering expenses incurred by the company in connection with the hearing below. It employed two firms of engineers, paying one $44,776.21 and the other $56,902.21.

Experts from both testified at the hearing. There is no question as to the value of their services, but the Commission in its report says two firms were unnecessary and gives expression to a surmise that the company desired to avail itself of the cumulative effect of their estimates and testimony. Accordingly the amount necessary to amortize $45,000 of this outlay was excluded from the company's estimate of operating expenses. The company contends it merely exercised its business judgment in the matter and that the Commission had no right to interfere. We think the Commission was authorized to determine whether the expense was reasonable and can see no ground for reversing its finding.

[**34**] 96. The Commission fixed 6½ per cent as a reasonable return on the $39,000,000 fair value of the property. The company contended the rate should be 8 per cent and the city argued for 6 per cent or less. In view of prevailing interest rates at the time of the hearing and the predicted increase in revenues from the same property with improved economic conditions, we think the 6½ per cent allowance was sufficient.

Rates

[**35**] 97. *Comparison of rates.* The Commission ordered the company to file a new schedule of gas rates effecting a reduction of 6 per cent to ordinary domestic and commercial consumers. It was further authorized to revise its heating and industrial rates so as to absorb the aforesaid reduction and hold the total return to 6½ per cent. As bearing on the question of rates, the city makes a bitter assault upon the company, complaining that it is overcapitalized, overbonded, that its rates have been higher than in other comparable cities, and that under the dominion of outside financial interests manipulating holding and allied corporations its operating costs have been excessively heavy. The company argues that the city's evidence on these points was incompetent and immaterial without a detailed inquiry into the conditions under which those other utilities operate and proof that they are similar to the conditions encountered in St. Louis. This court considered such evidence in State ex rel. Watts Engineering Co. v. Public Service Commission (1916) 269 Mo. 525, 538, P.U.R.1917C, 581, 191 S. W. 412, 416, Ann. Cas. 1917E, 786. But in State ex rel. St. Louis v. Public Service Commission, *supra,* when this case was here before, it was held to have been properly rejected. The valuation and rate of return in the instant proceeding have been fixed by the Commission independently on the basis of fair value and general operating conditions. There is nothing in its report to indicate it has sanctioned wasteful outlays for operation. Some items of expense were rejected. We cannot overturn the report and order on this ground.

[**36**] 98. *Allocation of rates.* But operating expenses do enter into the question of rates in another way, and probably the most hotly contested issue in the case turns thereon. The 6½ per cent fair return which the Commission's report authorizes the company to receive means, of course, a *net* return upon the $39,000,000 fair value of the property. To determine wheth-

er the company in the test year, 1935, would earn a net revenue of 6½ per cent on the investment, it was necessary to forecast what the receipts and expenditures for that year would be. In so doing the Commission endeavored also collaterally to protect domestic consumers as against house-heating consumers, whose relative demands upon the company's facilities are more fluctuating since gas for house heating is required only during the fall, winter, and early spring months and the demand is so largely governed by the weather.

99. What the Commission did was this. First it took the actual gas sales of 40,771,142 therms in the year 1933 (an average of 111,702 therms per day) and the maximum day's send-out for that year, 191,258 therms, and from them ascertained the "load factor" or ratio of the average day's sales to the maximum day's send-out. This was found to be 58.4 per cent.* Then it accepted the company's estimate that the maximum day's send-out in 1935 would be 270,000 therms in round numbers, and assumed that the load factor for that year would be the same as in 1933, which furnished a mathematical basis for computing that the total sales in 1935 would be 57,528,081 therms. From this theoretical total sales of 57,528,081 therms the report subtracted the 47,053,856 therms total sales for the year ending June 30, 1935, as estimated by Mr. White, vice president of the company (not the 48,581,000 therms estimated for the whole *calendar* year 1935 appearing in the table set out in paragraph 26 of this opinion), and obtained a remainder of 10,474,224 therms. Of this remainder the report says, "the difference of 10,474,224 therms between the amount which the company could theoretically sell and the amount which White estimates the company will sell is, no doubt, due to the fact that heating customers buy gas only during approximately five months of the year."

100. The report then proceeds to compute the net revenue which would be derived from the sale of this imaginary additional 10,474,224 therms of gas and finds it to be $403,258. Adding this amount to the Commission's estimate of the company's other net revenue for the year 1935 gave a total of $3,383,677. A 6½ per cent annual return on the $39,000,000 fair value of the property would be $2,535,000, and this, plus the $500,000 annual depreciation allowance, would make $3,035,000 which the company was entitled to receive annually. Subtracting that sum from the aforesaid estimated net annual revenue of $3,383,677 left an overplus of $348,677. This was just about 6 per cent of the revenue from domestic and commercial consumers under the general service rate, so the Commission ordered the company to make a 6 per cent re-

*It would have been more accurate if the Commission had computed the ratio of the average day's *send-out* (instead of sales) to the maximum day's send-out, since the send-out covers all gas sent out including that not sold, such as leakage and gas used by the company. This amounted to 2,528,791 therms in 1933, an average of 6,928 therms per day. In comparing the average day's *sales* with the maximum day's send-out, the Commission necessarily excludes this unsold gas from the former and includes it in the latter. The load factor correctly computed would be 62 per cent instead of 58.4 per cent as the Commission has figured it. But to avoid complications and for the purposes of comparison we have followed in this discussion the method used by the Commission.

duction in that rate, and authorized it to "revise" its house-heating and industrial rates in an effort to obtain from actual sales the $403,258 *theoretical* house-heating sales added by the Commission in its estimate.

101. The Commission conceded that the company would not actually earn as much from house heating as its report had thus estimated. But it proceeded on this theory: That the heavy and erratic requirements of house-heating customers make the load factor low, necessitating the retention in the property account of a considerable part of the company's gas-manufacturing machinery to meet the peak demand, thereby swelling the rate base and consequently the rates collected in paying a fair return thereon; and that these consumers should therefore bear the resulting burden. (Ideal conditions would make the load factor 100 per cent, the average daily demand and the maximum daily demand being equal.) The report speaks of the company's house-heating rate as a promotional rate offered to develop that business at the expense of domestic consumers. There is some justice in that contention, though it is also true, as the city maintains on another point in its brief, that the larger the gas output, especially per consumer, the lower the cost of manufacture, and ultimately the lower the rates will become. And, as the city further points out, if the company had shut-off contracts with industries, so that their gas supply could be stopped on days when the house-heating and domestic demands are burdensome, the load factor would be higher. From the standpoint of the city, at least, it would seem the smoke problem in St. Louis also might be entitled to some consideration.

102. But taking the case as it stands, the Commission's general theory is founded on authority. In San Diego Land & Town Co. v. Jasper (1903) 189 U. S. 439, 446, 47 L. ed. 892, 23 S. Ct. 571, 574, a water plant had been overbuilt to irrigate an area of 6,000 acres which it did not, in fact, supply. The rates were fixed on the theoretical assumption that this business did exist, to fit the valuation of the plant, but of course no revenue was derived from the assumed but actually nonexisting business. The United States Supreme Court held the rates were not confiscatory, saying: "If a plant is built, as probably this was, for a larger area than it finds itself able to supply, or, apart from that, if it does not, as yet, have the customers contemplated, neither justice nor the Constitution requires that, say, two-thirds of the contemplated number should pay a full return." The effect of this was to allow the utility a fair return only on a rate base sufficient to supply the existing demand. See, also, Montana Pub. Service Commission v. Great Northern Utilities Co. 289 U. S. 130, 135, 77 L. ed. 1080, P.U.R.1933C, 225, 53 S. Ct. 546. On the other hand, it is held that, when a utility "starts with new works, or a large addition to the original supply, [it] is entitled to an income therefrom somewhat greater than what is due to the cost of work[s] sufficient merely to meet the present demands." Long Branch Commission v. Tintern Manor Water Co. (1905) 70 N. J. Eq. 71, 85, 62 Atl. 474, 479; Long Branch v. Tintern Manor Water Co. (N. J. 1917) P.U.R.1918A, 178. That some

favorable consideration should be given in rate making to the fact that a plant is developing a new business or territory is but the converse of the proposition that when it is fully established and more able to do business economically its rates should be lower. And for this purpose the plant may be viewed as a whole, though only a part of its business is being developed, if the benefit ultimately will redound to the whole.

103. However, conceding there is merit in the Commission's legal theory, there probably is some ground for asserting its calculations do not *mathematically* justify the conclusion drawn. As heretofore stated, the load factor for any year is the ratio of the average day's sales to the maximum day's demand. In 1933 it was 58.4 per cent. In 1935 (using round numbers), on the basis of the company's estimate that its annual sales would be 47,000,000 therms and its peak day send-out 270,000 therms, it would be about 49 per cent. The Commission's report applied the 1933 load factor of 58.4 per cent to the year 1935, and thereby found, in effect, that, if the demands of the various kinds of gas service (seasonal and regular) stood in the same ratio to each other in the year 1935 as they did in 1933, and the maximum day's demand in 1935 was 270,000 therms, the total annual sales that year theoretically would be 57,000,000 therms. But (owing to the poorer load factor of 49 per cent) the company estimated it would only sell 47,000,000 therms of gas in 1935. The Commission charged the difference of 10,000,000 therms to house heating and held that service to be solely responsible for the decline in the load factor, because house heating is entirely seasonal, with a poor load factor, and the company had estimated that in 1935 it would have over three times as many house-heating customers as it had in 1933. This conclusion, it may be conceded, is purely deductive, and without any figures to support it—mathematically.

104. But notwithstanding all this we cannot see how the company was hurt by the Commission's calculations, for it appears in the record that the company estimated the maximum demand or peak day use per house-heating installation in St. Louis is 30.1 therms. Mr. Lucas, its expert, so testified directly. He further testified that he estimated by the end of 1935 there would be 4,500 house-heating customers. This multiplied by 30.1 gives 135,450 therms as the house-heating demand for gas on the peak day for that year. The company estimated the total send-out on that peak day would be 270,000 therms. So it follows that the house-heating demand would be slightly over one-half of the total demand. And, if it be true that house heating is responsible for more than half of the maximum day's demand for gas, then there certainly can be no injustice to the company in charging it up with $403,258 theoretical gas sales for house heating, which is only about 11 per cent of the $3,383,677 total net revenue from all gas sales for the year. Further, with the facts shown that house heating is responsible for 135,450 therms of the estimated peak day demand for 1935, the 1933 load factor of 58.4 per cent can be applied to *that figure* because therein the house-heating demand is segregated. Doing so, the theoreti-

cal consumption of gas for house heating in the year 1935 would not be merely 10,000,000 therms, as the Commission has estimated; it would be more than twice that, exceeding 28,000,000 therms, which justifies the inclusion in its balance sheet of a much larger theoretical revenue from house heating than the Commission has charged up to it in its report.

105. The company cannot complain of the use of the 1933 load factor of 58.4 per cent in computing its theoretical sales in 1935, for that load factor is much higher and more favorable to the company than the one obtained from its own estimates, which is only 49 per cent. For the reasons stated, the company's contention on this point must be disallowed. It should be stated, however, that if, through the medium of shut-off industrial contracts, the company is able to utilize a substantial part of its plant capacity in off-peak periods, so as to bring up the load factor in combination with house heating, the situation would be different; and, if there had been such a showing, doubtless the Commission's order would not have been what it is. It is based on the company's own showing of an anticipated poor load factor for which house heating is predominately responsible.

Conclusion

This opinion calls for a reëxamination by the Commission of the following questions:

Allowance of general overhead for engineering and superintendence. See paragraphs 39–42.

Allowance for accrued depreciation. See paragraphs 54, 55, 56, 68.

Allowance of general overhead for taxes during construction, see paragraphs 43–48; or for working capital, see paragraph 66.

Allowance for annual depreciation. See paragraphs 77, 78.

Amortization of cost of change over expense, and cost of appraisals. See paragraph 94.

It will be observed the table at the beginning of this opinion shows the fair value at reproduction cost of all the company's used and useful property, depreciated, to which is added $4,466,067 "for upward price trends and going value." The table in paragraph 68, and the discussion at the end of paragraph 76, treated said $4,466,067 as representing these same elements of value. As a matter of fact, the Commission also took into consideration the original or investment cost of the company's tangible property in arriving at the valuation of $39,000,000, and the inclusion of said item of $4,466,067 is not to be considered as excluding that fact.

Subject to the foregoing, the judgment is affirmed and the cause remanded, with directions to the circuit court to remand to the Commission that it may rehear and determine the facts on the four points above mentioned in accordance with the views in this opinion.

All concur except Douglas, J., not voting because not a member of court when this cause was submitted.

UTAH PUBLIC SERVICE COMMISSION

Public Utilities Commission of Utah

v.

Utah Power & Light Company

[Case Nos. 1531, 1431.]

Valuation, § 39 — Rate base determination — Reproduction cost.

1. Application of the reproduction cost new method does not result in the finding of a value, without giving due weight to other methods of determining true value, which is acceptable as a rate base, p. 55.

Valuation, § 115 — Cost of brokerage — Bond sales.

2. Cost of brokerage in selling bonds is not properly includable as an organization expense in determining reproduction cost, p. 56.

Valuation, § 150 — Overheads — Taxes during construction.

3. A theoretical construction period divided into a preliminary construction period of one year and an active construction period of two years was held to be correct for the purpose of computing taxes during construction, in determining reproduction cost of an electric utility, p. 56.

Valuation, § 140 — Overheads — Interest during construction.

4. A theoretical construction period divided into a preliminary construction period of one year and an active construction period of two years was held to be correct for the purpose of computing interest during construction, in determining reproduction cost of an electric utility, p. 56.

Valuation, § 330 — Going value — Right to allowance.

5. Going value, present in every operating business, must through the application of the reproduction method be given due consideration, p. 57.

Valuation, § 361 — Going value — Electric utility.

6. Allowance was made for going value of an electric utility in an amount approximately 7.2 per cent of the total value of the property, p. 57.

Return, § 9 — Basis — Value and rate base distinguished.

7. Many different values can be put on property for different purposes and different kinds, and "value" and "rate base" are not synonymous, p. 57.

Valuation, § 104 — Accrued depreciation — Retirement reserve as measure.

8. A retirement reserve representing amounts determined arbitrarily each year by a public utility company cannot be expected to indicate the accrued depreciation in the plant at a given time, p. 58.

Accounting, § 10 — Depreciation — Change from retirement accounting to depreciation accounting.

9. Depreciation accounting instead of retirement accounting is required under the revised uniform system of accounts for electric utilities, and a company which has maintained a retirement reserve should make the neces-

sary study from which proper depreciation rates may be determined in changing from retirement accounting to depreciation accounting, p. 58.

Rates, § 120 — Objective in rate making.

10. The primary objective of the Commission in establishing rates is to secure for the people of the state the lowest rate for service together with such provisions in rate schedules as will allow most convenient use, p. 58.

Rates, § 124 — Reasonableness — Maintenance of service — Encouragement of use.

11. The Commission is concerned with the quality of service and incentives for utility companies to pursue a course which will result in the most widespread use of electricity on the farms and in the homes, and that the dependability of electrical energy and the rates charged for the same shall be such as to encourage and foster the industries within the state, p. 58.

Rates, § 253 — Schedules — Simplification — Objective rate.

12. Dates should be fixed when objective rates (in force for more than two years in order to promote more extensive use by allowing discounts for additional use) will be put into effect for all consumers, thereby eliminating features of present schedules which have been the cause of complaint and at the same time bringing about simplification in the entire rate structure, p. 58.

Rates, § 345 — Electric — Power service — Demand charge — Measurement.

13. A reduction in the number of kilowatt hours included in the horsepower capacity as specified in various power schedules was required in connection with an extension of the peak measurement from a 5- to a 15-minute interval, optional schedules being ordered which might be taken by power users operating at high load factor and for whom there was but small difference between measured peaks of 5- and 15-minute intervals, it being provided that the application of the schedule once chosen would continue with the period of the contract unless changed for cause in accordance with rules and regulations constituting a part of the company's filed tariffs, p. 59.

[December 30, 1937.]

COMPLAINT *by Commission against rates of electric utility; revised rate schedules providing for lower charges ordered.*

APPEARANCES: Joseph Chez and John D. Rice, for Public Service Commission of Utah; R. R. Carey, for Consumers Welfare League; T. A. Hunter, for Globe Grain & Milling Company; W. T. Langton, for Apartment House Industry of Salt Lake City; Mitchell Melich, for Moab City; George R. Corey, A. C. Inman, and Calvin Behle, for Utah Power & Light Company.

By the COMMISSION: This case, No. 1531, was instituted by the then Public Utilities Commission on December 19, 1933, by a general complaint against the company, which followed the language of the Public Utilities Act, requiring a full investigation of the rates and practices of the company; proper orders thereafter to be made in conformity with the Public Utility Laws of the state.

On February 8, 1934, the company filed its answer denying the allegations of the complaint.

Theretofore on July 12, 1933, Major C. W. Haney, Quartermaster Corps, U. S. Army, for and in behalf of the United States Government, War Department, U. S. Army, filed a complaint against the company with this Commission, Case No. 1431, sometimes referred to as the "Army Case," in which complaint the only material allegation was that the rates charged by the company for electric service at Fort Douglas, Utah, the Army Hangar, and a detached building (all in Salt Lake City) "are considered too high." The relief asked was a 10 per cent reduction in rates.

Subsequently, Joseph Zaine, Master Sergeant, Ordnance Department, U. S. Army, filed a similar complaint, Case No. 1442, involving electric service to the Ogden Ordnance Depot. This was a separate proceeding and was later dismissed upon motion of the complainant.

Within due time the company filed a motion to dismiss and an answer in Case No. 1431. The matter first came on for hearing before the Commission on September 28, 1933. The company's motion to dismiss, and also an oral motion to strike the complaint, were passed by the Commission to be later considered in connection with the merits of the case.

At the conclusion of complainant's testimony, the company renewed its motion to dismiss upon the grounds stated therein, and also for failure of proof. This motion was granted, and the case dismissed without prejudice.

Later, and on the same day, over the objection of the company, this ruling was vacated and set aside, and the matter continued for further hearing, which was held from November 9 to 15, 1933. During the course of that hearing a petition for leave to intervene was presented on behalf of some thirty individuals. This petition was unverified and contained no allegations of material fact. It merely asked that petitioners be allowed to become associated with complainant, that the evidence theretofore introduced in Case No. 1431 be considered in support of petitioners' claims, and that petitioners be allowed to introduce further evidence in their own behalf. The petition was finally received by the Commission over the objection of the defendant company. Counsel for intervenors later stated they had no evidence to introduce and the matter was finally submitted.

Briefs were submitted by the defendant company and by the Army.

On May 21, 1934, the Commission rendered its decision in Case No. 1431 (6 P.U.R.(N.S.) 525) and among other things found that no evidence was offered in behalf of the intervenors; that the case "submitted by the government was far from being complete, and the evidence insufficient to sustain or justify a finding that the rates charged the government are unjust, unreasonable, and excessive"; but held that "the complaint of the government and the petition of the intervenors should not be dismissed for want of proof; but that they should be combined with the statewide Case No. 1531 (which had been instituted in the meantime, and was then pending before the Commission) for further hearing and investigation.

Under date of March 27, 1934, the

Commission entered its order in Case No. 1531, in which it required the company, among other things, "to make a valuation and appraisal of all assets of the Utah Power & Light Company which are used and useful in furnishing electrical service to your (the company's) patrons in the state of Utah. Such valuation and appraisal, if possible, to be dated March 31, 1934."

Said order also required the company to file with the Commission the following:

"1. Statement showing book cost as of March 31, 1934, of each generating plant according to the uniform classification of accounts constructed by or for the Utah Power & Light Company.

"2. Similar statement for all other properties.

"3. Statement showing present installed capacity of each plant and the kilowatt hours generated by each plant during the year 1933, and the three months of the year 1934.

"4. Statement showing the total net requirements in kilowatts to serve Utah patrons as of March 31, 1934.

"5. Statement showing estimated transmission and transformer losses which would be incurred in furnishing Utah requirements.

"6. Statement showing amounts and costs of electrical energy purchased from Idaho Power Company, and other companies, together with copy of agreements or contracts, covering such purchases. These should cover the year 1933 and three months of the year 1934.

"7. Statement showing reproduction cost new at present-day prices of all properties used and useful in furnishing electrical service to your patrons in Utah with accrued depreciation."

The records show that the company commenced the preparation of the information required by the Commission's order of March 27, 1934, immediately after the issue thereof and proceeded as rapidly as possible to inventory and value their properties and to determine the present condition of the same. For the convenience of all concerned, it was later considered advisable to prepare the valuation and all statements required in its order as of December 31, 1934, instead of March 31, 1934, and that date has been used throughout. The additional information required by the Commission's order of March 27, 1934, was furnished to the Commission in part.

The Commission's staff at the same time undertook extensive inspections of the properties and examination of the company's records and of the evidence being prepared by the company. Two members of the engineering staff were assigned to check the work of the company in preparing its inventory. Later Mr. Leonard Wilson was employed by the Commission as its valuation engineer, assigned to this case; the Commission also assigned Messrs. L. H. Merrill, Leonard Slusser, and Sterling Rasmussen from its engineering staff to coöperate with him in making an independent investigation of the property of the company, and in checking the work done by the company's valuation staff. The Commission also assigned Messrs. Elliott L. Kimball and Douglas Barton of its accounting staff to examine the books and accounts of the company,

and John D. Rice of the attorney general's office represented the Commission in a legal capacity.

These members of the Commission's staff were almost constantly engaged in this work for a period of more than a year and a half. The results of their investigation were presented in the form of exhibits and testimony, which, together with their advice, have been of much value to the Commission in arriving at its determination and conclusions in this case.

By order of the Commission hearings in this matter were commenced November 23, 1936, and continued at intervals until April 13, 1937, at which time the case was taken under advisement by the Commission. The voluminous record consists of 1,724 pages of testimony, 20 exhibits introduced by the power company, and 115 exhibits introduced by members of the Commission's staff of engineers and accountants, and by individual protestants.

The present Commission took office just before the conclusion of the hearings in this case, consequently it did not participate therein except on the last day. However, a complete transcript was taken and the Commission has had full opportunity to review the evidence and the exhibits. The fact that the present Commission was not in office during the hearings has caused the burden of analysis to be much greater than would otherwise have been the case, and consequently the analysis of the evidence has required a great part of the attention of the Commission for a considerable period of time.

The purpose of the Commission is to terminate the case and secure for the users of the service provided by the Utah Power & Light Company all possible resulting benefits. With this thought in mind the Commission has examined the record and acquainted itself with the contents thereof and with the properties and practices of the company, and has made a personal examination of a large part of the properties of the company, having been accompanied on these tours of inspection by members of its engineering and accounting staffs who participated in those investigations made prior to and during the hearings.

Case No. 1431

Before proceeding to the determination of Case No. 1531, we should dispose of the issues raised in Case No. 1431 (i. e., the "Army Case") hereinbefore referred to as having been consolidated with Case No. 1531.

During the progress of Case No. 1531, the company's rate schedule No. 77 was revised. Under this revised schedule a saving in excess of the 10 per cent reduction asked for by the Army was effected. The Commission's staff advises that electric service is now being furnished the Army Post at Fort Douglas under that schedule. This effectually disposes of the issues raised in Case No. 1431 in so far as the Army is concerned, and for the purpose of the record it may be dismissed. Whatever other issues may have been raised by intervenors in that case will be considered and disposed of in our consideration of Case No. 1531.

Case No. 1531

The company's interconnected sys-

tem serves southeastern Idaho, northern and central Utah, and southwestern Wyoming. Its largest generating stations are located on Bear river, four of them—Soda, Grace, Cove, and Oneida—and the Lifton pumping plant which pumps from Bear lake water which is used through the Bear river plants, being located in Idaho. These plants are interconnected by transmission lines extending into Utah, and substantially their entire output is used for rendering service in Utah.

This interconnected system also includes the electrical properties (sometimes referred to as "leased property") of Utah Light & Traction Company, a wholly owned subsidiary of Utah Power & Light Company, which are located entirely within the state of Utah and operated as a part of the interconnected system under a 99-year lease. These properties include the Pioneer, Weber, Stairs, and Granite hydroelectric plants, the first Jordan steam plant in Salt Lake City, interconnecting transmission lines, the distribution system in Salt Lake City and a part of the distribution system in Ogden. Inasmuch as this leased property is operated as an integral part of the company's interconnected system, its value is included as a part of the property used and useful in rendering service in Utah.

The facilities, consisting of small generating stations, transmission lines, and distribution lines, which the company uses in furnishing service to its Idaho customers, are located within the state of Idaho. The company also purchases some power for resale to its Idaho customers. These plants and lines are not included in the valuation because it is claimed by the company they do not render service in Utah.

Service in Wyoming is rendered over a line extending from the interconnected system at Devils Slide to Evanston. This transmission line is not included in the valuation and an allocation of generating facilities and other parts of the interconnected system to cover this use has been made and the amount deducted from the valuation.

However, the Commission is not completely satisfied with these allocations, as it appears a portion of the properties assigned to the Utah operations should have been charged to these other states.

Valuation

As Case No. 1531 proceeded before the Commission, the reproduction theory of finding the value of a utility's properties was held to almost exclusively by the company and the evidence it presented was in line with that method and in that respect with the order of the Commission; the company showing by its evidence what it claimed to be the cost of reproducing the company as of December 31, 1934, organized and financed with all properties tangible and intangible owned or leased by the company, used in rendering service to the public in Utah. The cost of reproducing these properties new as submitted by the company amounted to $87,383,501. The accrued depreciation, as submitted, amounted to $9,-331,086, leaving the "present value" (used throughout these findings to mean reproduction cost new less ob-

served depreciation) as of December 31, 1934, $78,052,415.

In many instances the cost of reproduction claimed by the company was contested by the witnesses appearing in behalf of the state and in other instances witnesses for the state contended that without reference to reproduction cost, present value claimed by the company was in error.

The Commission, following the evidence given by some of the state's witnesses and in line with the thought of certain of the Commission's staff, does not consider that the depreciation (observed depreciation) as indicated by the company and as consented to by some of the state's witnesses represents the true depreciation (accrued depreciation) existing in the company's plant.

[1] However, the valuation of the property ordered by our predecessor Commission was construed by the company to be the "reproduction cost new at present-day prices less accrued (observed) depreciation," and since the defendant has submitted a valuation on this basis and on this basis alone, a finding is now made of such a value. For the purpose of establishing a rate base the Commission does not consider this to be conclusive, as the application of the reproduction cost new method does not, in the opinion of the present Commission result in the finding of a value, without giving due weight to other methods of determining true value, which is acceptable to this Commission as a rate base.*

The Commission is aware, however, that the proceedings in this case to date have cost the company and the state approximately a half million dollars and have consumed four years of time up to the present. It appears to the Commission at this time it would be inadvisable to reopen the case and take additional evidence to supplement that evidence presented by the state, pertaining to various elements of value other than reproduction costs to the extent that such evidence would be fully competent to justify the Commission in using other means and methods for the purpose of arriving at an equitable rate base. For to do so would doubtless require a substantial expenditure on the part of the company and of the Commission and would delay the conclusion of the case for an additional and indeterminable length of time, and would also delay giving to the ratepayers the benefits which might, at the present time, be ordered by the Commission. Therefore, the Commission will order forthwith, and fix the effective dates of, such adjustments in the operations, rates, and practices of the company as the Commission deems advisable in the public interest.

The Commission's staff recommended reductions of $13,642,911 from the reproduction cost of the property, which would reduce the present value to $64,399,504. During the progress of the hearings the company conceded deductions from its physical plant account amounting to $968,274.

The principal deductions suggested by Commission representatives are as follows:

Account 301—Organization	$1,010,000
Account 354—Reservoirs, Dams, and Waterways	1,113,210
Account 318—Taxes during Construction	276,000
Account 355—Interest during Construction	2,282,775
Going Value	7,500,000

*See also post, p. 57.

Account 301—Organization.

[2] The items of organization expense submitted by the company amounted to $3,595,000. This included among other items the cost of brokerage in selling bonds. The classification of accounts specifically excludes bond discount from this account. The company urged that the amount included was not bond discount, but expense incurred in selling bonds, substantially the same as cost of selling stock, the latter cost being properly includable in this account.

The Commission is of the opinion that this amount is not properly includable in this account, therefore makes the entire deduction suggested, and finds the correct amount of this account is $2,585,000.

Account 318—Reservoirs, Dams, and Waterways.

The present value of this account claimed by the company is $16,309,188. Of the suggested deduction $167,227 was not disputed by the company. A careful examination of all the testimony convinces the Commission that the deductions suggested are too high and those conceded are too low. It accordingly finds the amount of this account to be $15,668,995.

Accounts 354 and 355—Taxes and Interest during Construction.

[3, 4] The company's claim of present value for these accounts was $4,920,200. In computing this amount the company used a 3-year construction period divided into two parts (1) a preliminary construction period of one year devoted primarily to preliminary investigation, organization, acquisition of lands, rights of way, franchise and water rights, preparation of plans and specifications, placing orders for the more important items of equipment and letting construction contracts; and (2) an active construction period of two years' duration during which all construction work would be completed and at the end of which the property would be turned over ready for operation. It also assumed that 10 per cent of the total construction expenditures would be expended during the first year and the remainder in equal parts during the remaining two years.

The Commission's valuation engineer testified that he believed the period too long and suggested it be cut in half.

This Commission, following the general practice of the Commissions and courts, recognizes that a reasonable construction period must be assumed when using the reproduction method of valuation. If it be agreed as contended in this case that in actual experience the property was not and would not be constructed as a unit, and for that reason a construction period commensurate with the construction of the property as a whole should not be allowed, then there would be many other variables that would have to be considered, and the whole theory of reproduction cost valuation be altered to conform.

The Commission, by a strict application of this theory, is of the opinion therefore that the theoretical construction period used by the company was correct. However, certain reductions have been made in various property accounts. These would reduce the amount upon which taxes and

interest during construction would be computed.

The Commission therefore finds that the present value as of December 31, 1934, of these accounts is as follows:

Account 354—Taxes during Construction	$552,000
Account 355—Interest during Construction	4,264,342

Going Value

[5, 6] This element of value, present in every operating business and so recognized by innumerable court and Commission decisions, must through the application of the reproduction method be given due consideration.

This Commission is of the opinion, however, that the amount claimed by the company, i. e., $7,500,000, is more than a reasonable allowance, and therefore fixes the amount of this item at $5,250,000 which is approximately 7.2 per cent of the total value of the property.

Present Value

After due consideration of the evidence pertaining to this means of valuation submitted by all the parties in this case, supplemented by our investigations relative to the application of the reproduction new method of determining value as interpreted by the courts and as used by other Commissions, it is our opinion that, at the present prices (i. e., December 31, 1934) the reproduction cost new less "observed" depreciation of the electrical property owned and leased by the company, used and useful in rendering service to the company's customers in Utah, including a fair allowance for organization expense, going value, and working capital, was $73,045,647.

Broken down according to the classification of accounts in effect at the date of the valuation this amount is classified as follows: [Table omitted.]

[7] There are a great many different values that can be put on property for different purposes and different kinds and the Commission does not consider "value" and "rate base" to be synonymous. Therefore, the Commission rejects this figure as a proper rate base. The Commission is not convinced that the reproduction theory should be the only means used in arriving at the rate base upon which any utility should be entitled to earn a fair return, and which consumers might be obligated to sustain by the charges made for service rendered by the company through the use of the properties under consideration. This Commission, therefore, does not concede that the value arrived at by strict adherence to the reproduction method constitutes a proper basis for the fixing of rates in the instant case or in any case.

The rate changes hereinafter ordered are not predicated upon this value. The value is found without prejudice to the finding of a value on some other basis, or the establishment of a rate base at any future time the Commission may believe such action to be necessary or useful for the benefit of the public and of the customers of the company.

Depreciation

As hereinbefore noted the valuation as submitted by the company showed observed depreciation of $9,331,086 which was deducted from reproduc-

tion cost new to determine present value as of December 31, 1934.

[8, 9] The balance in the company's "Retirement Reserve" on December 31, 1934, was $5,390,807. This reserve and the method heretofore used by the company in maintaining the same should not be confused with a "depreciation reserve" and the method used in arriving at the annual accruals to a depreciation reserve. The annual accruals in the past to the retirement reserve of this company have been designated amounts arbitrarily determined by the company. Thus, the "Retirement Reserve" could not be expected to indicate the accrued depreciation in the plant at a given time. It is a matter of record that on March 29, 1937, this Commission adopted a revised uniform system of accounts for electric utilities approved in 1936 by the National Association of Railroad and Utilities Commissioners. This system of accounts was made effective as of January 1, 1937, for Utah Power & Light Company. Under this system of accounts depreciation accounting is required instead of retirement accounting.

The annual appropriation to the retirement reserve of Utah Power & Light Company since 1933 has been $700,000. From information now available it is the view of this Commission that in changing from retirement accounting to depreciation accounting, as required under the newly prescribed system of accounts, that the accrual to the depreciation reserve for the year 1938 and for subsequent years should be $1,000,000 for the electric properties of the company owned and leased with the following proviso: The company shall commence immediately to make the necessary studies from which proper depreciation rates may be determined, such studies to be completed not later than December 31, 1938, at which time the results of such studies and the basic data from which such studies are made shall be filed with the Commission.

Rates

[10, 11] The primary objective of this Commission is to secure for the people of Utah the lowest rates for electric service together with such provisions in rate schedules as will allow most convenient use. Consistent with this objective the Commission is likewise concerned with the quality of service and incentives for the utility companies to pursue a course which will result in the most widespread use of electricity on the farms and in the homes of our people, and that the dependability of electrical energy and the rates charged for the same shall be such as to encourage and foster the industries within this state.

Very complete studies and analyses have been made of the company's tariffs now on file, and the Commission has concluded that a simplification of the rate schedules, together with changes in certain features of those schedules, will result in a lowering of the unit cost to consumers, and at the same time permit the company to effect substantial economies in its accounting and cost of calculating and rendering bills to consumers.

[12] More than two years ago the company, after consultation with the then Public Utilities Commission,

filed a plan and rates applicable to farm, residential, and commercial lighting service which it termed "objective rates." In order to promote more extensive use the plan provided for discounts to apply to the electricity consumed by individual consumers over and above their use as it then existed. Statistics obtained by the staff of the Commission show that consumers responded to this plan and a very large number are now billed on the objective rates.

It is the opinion of the Commission that dates should now be fixed when these objective rates will be put into effect for all consumers, thereby eliminating features of present schedules which have been the cause of some complaint, and at the same time, bringing about simplification in the entire rate structure. It is recognized that this action will bring about a loss in present revenues, but the Commission believes that the effective dates hereinafter fixed will permit sufficient time to compensate at least in part for these losses because of the larger use which will have been developed in the intervening period, and which will be accelerated by the knowledge on the part of consumers of the lower rates to take effect on the dates set.

The studies made by its staff have further convinced the Commission that reductions heretofore made and those now to be ordered for the above classes of consumers justify a reduction and simplification of rates available for the power users taking service at so-called low voltage. Accordingly, the reductions hereinafter prescribed should be made effective.

[13] Most of the power schedules in which the demand element is determined by measurement of the capacity required by the consumers fix the so-called demand charge on the basis of 5-minute integrated peaks. From time to time it has been represented to the staff and members of the Commission that more flexible use and economies in operation on the part of the power users will result from an extension of this peak from a 5- to a 15-minute interval. In general, it appears from the studies made that the present average cost of service under these schedules is not excessive nor unduly discriminatory, therefore in extending the peak measurement the Commission is of the opinion that there may fairly be a reduction in the number of kilowatt hours included in the horsepower capacity as specified in the various schedules. The studies made by the Commission's staff show that a blanket change of this character would result in increases to those consumers now operating at high load factor and for whom there is but small difference between measured peak of 5- and 15-minute intervals. It is not the desire of the Commission to increase the cost of service to these consumers, therefore, optional schedules will be ordered which may be taken by power users who so elect. The application of the schedules once chosen will continue with the period of the contracts unless changed for cause in accordance with the rules and regulations constituting a part of the company's filed tariffs.

During the past five years rates have been reduced in a number of schedules. Since the commencement of this action reductions have been made

by order of the Commission amounting to approximately $500,000 per year.

Calculations have been made which show that the reductions brought about by the changes now to be ordered by the Commission if applied to revenues as at present, amount to more than $348,000 per annum. It is believed, however, that advantages to the public in reduced rates will stimulate consumption and promote further use of service. The order of the Commission filed herewith sets forth in detail the changes to be made in the various schedules with their respective effective dates.

An appropriate order will issue.

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re Midland Water Company

[Application Docket No. 39141.]

Records, § 4 — Location outside state.

A relatively small water company wholly owned by a large industrial corporation should keep its books and records at one location in the state instead of keeping its general ledger, cash book, and accounts payable record at its office in another state subject to production for inspection by the Commission.

[December 20, 1937.]

APPLICATION *by water utility company for permission to keep certain of its books of accounts in its office in another state; application refused.*

By the COMMISSION: This matter comes before us, upon application of the Midland Water Company, a corporation organized under the laws of the commonwealth of Pennsylvania, for permission to keep its general ledger, cash book, and accounts payable record at its office in the city of New York, subject to production for inspection by the Commission in Pennsylvania.

The applicant, Midland Water Company, is a wholly owned subsidiary of Crucible Steel Company of America, which owns and operates a plant for the manufacture of steel products in the borough of Midland, Beaver county. The applicant supplies water service to employees of Crucible Steel Company, to the borough of Midland, and to the public generally in the borough of Midland, but does not give water service to Crucible Steel Company. Approximately 75 per cent of applicant's consumers are employees of Crucible Steel Company.

Though it may be desirable on the part of Crucible Steel Company's general officers to have applicant's general books close at hand, the paramount interest of the public must be controlling. We find that applicant's books and records should be kept at one location in Pennsylvania.

Applicant is a relatively small company, its accounting is comparatively simple, and it therefore seems to us that the clerical staff of Crucible Steel Company's Midland plant should be able competently to handle all applicant's accounting matters, with little instruction and guidance by mail from New York, and with the very substantial guidance of the Commission's uniform system of accounts.

In examining any set of accounts, it is necessary to trace entries in the general books back to the books and records of original entry, and vice versa. It is therefore imperative that the Commission's examiner of accounts have all books and records at his disposal at one location. While applicant is willing to agree to return the general books to Pennsylvania upon request of the Commission, there would necessarily be some delay in getting the books back to Pennsylvania.

Furthermore, without questioning the good faith of the applicant, it is obvious that such an agreement could not be enforced if circumstances should induce a refusal by the New York custodians of the books to deliver them in accordance with the terms of the agreement.

Records so kept outside of the state are not readily available for inspection by either the Commission or its agents, and such an arrangement always causes delay in securing information desired by the Commission. Local offices are seldom in touch with or familiar with such records and when they are returned to the local office for inspection, the local officers are not acquainted with the details of the accounts, and are frequently unable to furnish explanations of the entries made therein.

We are of the opinion that it is not in accordance with public policy and good practice that the local records of Midland Water Company should be permanently kept outside of the state.

The matters and things involved having been fully considered; therefore,

Now, to wit, December 20, 1937, it is *ordered:* That the application of Midland Water Company be and is hereby refused.

PENNSYLVANIA PUBLIC UTILITY COMMISSION

The Rapid Transfer Company, Incorporated

v.

Glen A. Simpson

[Complaint Docket No. 11403.]

Public utilities, § 23 — Motor carrier operation — Donated services.

An authorized motor carrier does not unlawfully engage in common carriage not authorized by his certificate when he furnishes vehicles without making any charge therefor for transportation of a group of members of the American Legion, his drivers also donating their services in operating

the motor vehicles, although such transportation is not authorized by his certificate.

[November 9, 1937.]

COMPLAINT *against alleged unauthorized operation by a motor carrier; dismissed.*

By the COMMISSION: The Rapid Transfer Company, Inc., has certificates of public convenience authorizing bus service between Carbondale, Lackawanna county, and Great Bend, Susquehanna county, and between Carbondale and Honesdale, Wayne county, and also group and party service from a number of communities along these routes, including Forest City. Glen A. Simpson is similarly authorized to furnish bus service between Carbondale and Hancock Bridge, Wayne county, call and demand service from Lakewood, Wayne county, and group and party service from summer camps in Wayne county.

The former operator complained that Simpson transported a group of members of the American Legion from Forest City to Milford on May 2, 1937, although none of his certificates authorized that service; that he procured this business after personal solicitation; that it was furnished at lower rates than those quoted in his tariff and that he also violated his certificates in other ways.

Simpson admitted in his answer that the service was furnished by one of his busses and 7-passenger automobiles but asserted that no charge was made for the service, the busses being donated to the Legion. The drivers, employees of Simpson, also donated their services in operating the motor vehicles. Complainant offered no testimony regarding this trip or the general allegations referred to in the complaint but rested its case upon the testimony submitted by respondent, the two drivers, and two persons connected with and members of the American Legion. The record in this respect fully supports and confirms the answer filed by the respondent.

In Schuylkill Transp. Co. v. Frantz, 11 Pa. P. S. C. 218, P.U.R.1932C, 171, 172, an almost analogous state of facts was presented before the Public Service Commission. In that case the respondent, Frantz, an authorized common carrier, permitted his busses to be used to transport a group of school children from Pottsville to participate in a parade at a firemen's convention at St. Clair. Frantz was a member of a local fire company and besides donating his busses for this purpose, drove one of them himself while the other two were driven by members of the fire company. In that case the Public Service Commission stated:

"A common carrier is not permitted to transport persons without charge. The Constitution of Pennsylvania contains a specific restriction against such service, with the exceptions mentioned therein. Nor does the fact that Frantz does not hold himself out generally to transport groups of persons from Shenandoah remove the trip from the jurisdiction of the Commission. He is unquestionably a common carrier and has certificates of public convenience authorizing him to engage in that business. Any trans-

portation in which he engages of the same nature as that authorized by his certificates is subject to the jurisdiction of the Commission. He may not transport groups of persons originating in any point other than those stated in his certificates. However, the evidence was not sufficient to prove that the transportation in this case was made by Frantz. He is a member of his local fire department and on friendly terms with the members of the fire departments of neighboring communities, and at their request he loaned three busses for transportation of a band to take part in a parade. The fact that he drove one of the busses does not prove that he was making the trip as a common carrier. Although the lending of the busses might be used as a subterfuge to engage in transportation not permitted by the Commission, there is no evidence of such subterfuge in this case."

We agree with our predecessors that the operation complained of was not common carriage, operated unlawfully by the certificate holder. There is no evidence of solicitation of the business by respondent in this case or that the donation of the busses was a subterfuge to evade our jurisdiction; therefore,

Now, to wit, November 9, 1937, it is *ordered:* That the complaint be and is hereby dismissed.

NEW YORK DEPARTMENT OF PUBLIC SERVICE, STATE DIVISION, PUBLIC SERVICE COMMISSION

Re Village of Little Valley

[Case No. 9389.]

Service, § 118 — Duty to serve — Franchise obligations and duties.

1. A franchise, although conferring valuable rights and privileges, also imposes upon a public utility company important duties and obligations, perhaps the most important of which is to render service to all applicants who are willing to pay reasonable rates and comply with reasonable rules and requirements, p. 63.

Monopoly and competition, § 44 — Failure of existing utility to serve — Extension by municipal plant.

2. A municipal plant was authorized to extend electric service into franchise territory of an electric company which had solicited business and persuaded persons to wire their buildings and install electric fixtures but had failed to construct its lines and render service, p. 63.

[January 25, 1938.]

PETITION *by village for authority to extend its electric distribution system into a portion of a town; granted.*

By the COMMISSION: [1, 2] Let the decision of the Commission in this case be a notice and a warning to all utilities in the state similarly situated.

A franchise confers valuable rights and privileges, but it also imposes im-

portant duties and obligations. No company may exercise the former without fulfilling the latter. Perhaps the most important duty is to render service to all applicants who are willing to pay reasonable rates and comply with reasonable rules and requirements.

Since the enactment of the Public Service Law in 1907, it has been the general policy not to encourage competition in a given area by utilities rendering the same service. For thirty years, Commissions have generally protected utilities, public and private, from encroachments in their franchise areas so long as the utility first in the field was able and willing to render adequate service at reasonable rates and to comply with the statutes of the states and the orders of the Commission. But it has been clearly indicated from time to time that unless a utility is willing fully to meet its obligations in every direction, it could not expect to have its territory protected against invasion.

In the instant case, it clearly appears that the New York State Electric and Gas Corporation solicited business and went so far as to persuade persons in its territory to wire their buildings and install electric fixtures; after applications were received and all of the work was done, the company failed to construct its lines and render service. Naturally, prospective consumers were up in arms and sought service from some other source. They applied to their local authorities to grant a franchise to an adjoining municipal plant, believing that this was the way in which they could more readily obtain service.

Theoretically, there are two methods of dealing with the situation. One would be a suit to compel the New York State Electric and Gas Corporation to fulfil its obligations under its franchise. But this corporation belongs to a system generally known to be litigious. For example, in a recent case, one of the Associated companies appealed from an order of the Commission to the appellate division and then to the court of appeals. It lost its case in both courts, but it started other litigation and was again defeated in the appellate division and the court of appeals. Even then, after five years of litigation, it still refused to comply with the order of the Commission, and recently has instituted legal proceedings in the Federal courts. If permitted, it will doubtless carry the matter to the United States Supreme Court.

Is it surprising that neither the Commission nor those who want service see in recourse to the courts any prompt and satisfactory settlement? They resort to service from an adjacent municipal plant because they see that this method will grant prompt relief.

The Commission has decided that under the circumstances in this case it will permit the adjacent municipality to extend its service into the territory already covered by a franchise held by a private company. It should be clearly understood by any other company contemplating a similar attitude, if there be such, that the same course of action will be followed by the Commission where the facts are similar. This is the first case of its kind in at least eight years, but it should serve as a notice and warning.

★ ★

ACCEPTANCE!

gineering executives purchase equipment on demonstrated performance. That lcan Soot Blowers are on the preferred list of engineers who buy because demonstrated lowest maintenance sound engineering and the ruggedest con-uction ever built into Soot Blowers, is evidenced by the following partial list representative contracts installed or sold in 1937.

Allis Chalmers Co.	West Allis, Wis.
Ames, City of	Ames, Iowa
Atlantic Refining Co.	Atreco, Texas
Baltimore Transit Co.	Baltimore, Md.
Bethlehem Steel Co.	Sparrows Point, Md.
Chain Belt Company	Milwaukee, Wis.
Columbia Enameling & Stamping Co.	Terre Haute, Ind.
Container Corporation	Carthage, Ind.
Continental Diamond Fibre Co.	Newark, N. J.
Crosley Radio Corporation	Cincinnati, Ohio
Eldora Gold Mines	Port Hope, Ontario
Elgin, Joliet & Eastern R. R. Co.	Gary, Ind.
Formica Insulating Co.	Cincinnati, Ohio
Globe Steel Tubes Co.	Milwaukee, Wis.
Hamilton Coke & Iron Co.	Hamilton, Ohio
Helwig Silk Dyeing Co.	Philadelphia, Pa.
Hudepohl Brewing Co.	Cincinnati, Ohio
Jose Arechabala Sacieda	Cardenas, Cuba
Kaukau Sugar Co.	Honolulu, Hawaii
Kendall Refining Co.	Bradford, Pa.
Keystone Public Service Co.	Oil City, Pa.
Latonia Refining Co.	Latonia, Ky.
Lehigh Portland Cement Co.	Oglesby, Ill.
McAndrews & Forbes	Camden, N. J.
M Street Heating Plant	Washington, D. C.
MacSim Bar Paper Co.	Otsego, Mich.
Mendocino State Hospital	Mendocino, Calif.
Metropolitan Edison Co.	Reading, Pa.
Municipal Power Plant	Rochester, Minn.
N. Y. State Electric & Gas Co.	Dresden, N. Y.
Ohio Power Co.	Windsor, W. Va.
Pennsylvania Electric Co.	Sewart, Pa.
Ralston Purina Company	Battle Creek, Mich.
Republic Oil & Refining Co.	Texas City, Texas
Republic Steel Co.	Thomas, Ala.
Rochester & Pittsburgh Coal Co.	Lucerne, Pa.
Schervier Hospital	New York City
Sherwood Refining Co.	Warren, Pa.
Sloan Blabon Co.	Philadelphia, Pa.
A. E. Staley Mfg. Co.	Decatur, Ill.
Thilmany Pulp & Paper Co.	Kaukauna, Wis.
Tide Water Power Co.	Wilmington, N. C.
Timken Roller Bearing Co.	Columbus, Ohio
United Refining Co.	Warren, Pa.
U. S. Military Academy	West Point, N. Y.
Vacuum Oil Co.	Paulsboro, N. J.
Village of Hinsdale	Hinsdale, Ill.
Washington Gas Light Co.	Washington, D. C.
Westinghouse Elec. & Mfg. Co.	Mansfield, Ohio

lcan Soot Blower Corporation does not ld down to a price. Vulcan builds into their ipment thirty-three years of experience; lt by highly skilled engineering and plant sonnel of long service, using the highest e material that hard exacting service has monstrated is the most practical for its pose. The result is trouble free, long years of service, making unnecessary frequent servicing—and when service is required, skilled field engineers on their rounds, offer it gladly to maintain your Vulcan equipment in top condition. Just ask the Vulcan Sales or Field Engineer WHY Vulcan build into their equipment the most rugged, trouble free, lowest maintenance you can buy.

VULCAN SOOT BLOWER CORP., Du Bois, Penna.

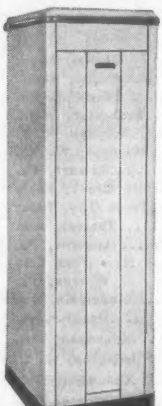
★ ★

Industrial Progress

Rex Electric Water Heaters

With the announcement of the Rex electric Nu Mode automatic water heater, The Cleveland Heater Company, Cleveland, Ohio, now has available three different types of Rex electric water heaters in 29 different sizes—the regular round, the cabinet Table-High and the square Nu Mode.

A new catalog bulletin C E 338 recently issued, describes these heaters which combine beauty with efficiency and durability.



Rex Electric Square Model Nu Mode Automatic Storage Water Heater

Water temperatures in the Rex heaters are accurately controlled within a narrow range by a snap-action thermostat, which both makes and breaks the circuit without arcing. The Rex thermostat dial permits adjustment from 100° to 200° F.

A chromalox heating element is used. This long-lived, quick-acting, low watts-density heating unit is attached to the storage tank by a water-tight, two-bolt flange connection.

A thick wall of rock wool insulation, surrounding the extra-heavy storage tank, protects the hot water against heat loss.

Rex electrics are finished in attractive and durable baked enamel—standard finish is white with black trim. Upon request, special color combinations can be provided.

Other noteworthy Rex features are: A properly placed, built-in Patrol temperature and pressure relief valve which prevents excessive water temperature and pressure conditions; heavy, non-corrosive top, base and outer shell; special water inlet baffle to minimize mixing of the incoming cold water with the heated water; accessible drain valve for periodic flushing of tank.

New list prices became effective March 1st.

Modern Kitchen Bureau Plans $350,000 Promotion Program

The Modern Kitchen Bureau has announced plans, to be put into effect immediately, for a comprehensive sales and advertising program. Upwards of $350,000 will go into the effort.

The power of this campaign will be placed behind three great labor-saving appliances... Electric Ranges, Electric Refrigerators and Electric Water Heaters.

All three product activities will be under The Modern Kitchen Bureau banner as a result of a decision of various contributing manufacturers to conduct an aggressive campaign to further consumer acceptance of these three appliances. In addition, during 1938, the Bureau will continue on an enlarged scale its promotion on the modern electric kitchen.

Crosby Wire Rope Clip

A booklet giving "a bit of history on wire rope and wire rope fastening methods . . . and a lot about the genuine Crosby wire rope clip" is published by the American Hoist and Derrick Company, St. Paul, Minnesota.

The 20-page publication stresses the importance of thoroughly dependable wire rope fastenings and it traces the early history of this product, the development of the Crosby clip and illustrates its present day application and use.

Descriptive literature about the new "American" 40-ton locomotive crane, the new "American" general purpose hoist and other material handling equipment has been issued by this manufacturer.

Gas at the World's Fair

The central heating, water heating, and cooking at the World's Fair to be held in New York in 1939 will be done by gas. Gas for dozens of large restaurants capable of serving thousands of people, together with industrial loads for baking, food manufacturing and other processes, and gas display flames will be added to the heating loads, according to Hugh Cuthrell, vice president of the Brooklyn Union Gas Co. and president of Gas Exhibits, Inc.

The proposed gas exhibit at the World's Fair will be an educational exhibit and will show the production, storage and use of gas, both manufactured and natural.

Epoch-making discoveries and inventions upon which the industry has been dependent for scientific development of each phase of the industry will be effectively dramatized.

Gas will be the sole illuminant for the gas

Makes Savings

THAT WILL

Surprise You!

Comparative cost figures, covering the operation of power hammers in development and maintenance work of public utilities, often reveal Barco Portable Gasoline Hammer savings that are really startling.

No other type of power hammer is so low in first cost and operating cost. The many ways in which it saves time and money on utility operations would make a list too long to print here. Some of them will only be discovered in emergencies by a regular Barco user. Year 'round efficiency.

BARCO MANUFACTURING CO.
1803 Winnemac Ave.,
CHICAGO, ILL.

BARCO *portable* GASOLINE HAMMER

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building, the exterior of which will be floodlighted by gas. Guarding the main entrance will be four flaming pylons, each 90 feet high, grouped around a 50-foot gas flame that will roar skywards from a huge cube representing 1,000 cubic feet of gas.

Simplicity Marks Design of Permaflector Luminaire

A PERMAFLECTOR Luminaire (Catalog No. B-50—The General Service, APS Style, Luminaire) having an entirely new and distinctive design that embodies maximum light efficiency and low cost, is announced by the

New Permaflector Luminaire

Pittsburgh Reflector Co. The beauty of this unit lies in its simplicity. It is free of gingerbread ornamentation and its graceful flowing lines create a lasting beauty.

Like all other Permaflector Luminaires and Lustroliers, this new unit does not depend upon the bowl for light reflection and distribution. The bowl serves only as an enclosure for the Permaflector. This added feature of the silvered glass reflector with the permanent reflecting surface makes Permaflector equipment outstanding and different.

In interiors having a comparatively high ceiling, the standard short husk may be used because the lamp neck is adequately concealed by the bowl.

However in a low interior of large area there is a possibility of a small portion of the lamp being exposed. If this is objectionable, a skirt is supplied to be attached to the bottom of the husk to cover the exposed portion of the lamp. The small decrease in light output resulting from this change is offset by the improvement in appearance.

A new price schedule on all lines became effective March 1.

Coöperative Effort Promotes Electric Counter Cooking

THE Commercial Electric Cooking Council, sponsored by the Edison Electric Institute and the National Electrical Manufacturers Association, is offering utility companies a plan designed to obtain more revenue by promoting electric counter cooking equipment.

Pointing out that the potential market for kilowatt-hour sales represented by commercial electric cooking equipment is as great as that represented by the domestic electric range, the Council's plan book presents a definite program for developing this potential market which is described as "a market as large as the American appetite."

Combination companies, as well as straight electric utilities benefit from active participation in this plan, because electric counter cooking equipment supplements, rather than replaces, the present cooking load.

The plan book sets forth the program objectives for the utility, for the dealer and the manufacturer. Sample direct mail folders, available at low cost with company name imprinted, are shown in the plan book.

P. M. Alden of the Philadlephia Electric Co., is chairman of The Commercial Electric Cooking Council; C. E. Greenwood represents the Edison Electric Institute, and Bruce A. Fleming represents the National Electrical Manufacturers Association. The following are contributing manufacturers of the NEMA Food Service Equipment Section: Edison-General Electric Appliance Co., Griswold Mfg. Co., Hamilton Beach Co., Landers Frary & Clark Co., McGraw Electric Co., The Silex Co., and Wells Mfg. Co.

Westinghouse Elects Bucher

GEORGE H. Bucher, executive vice president of the Westinghouse Electric & Manufacturing Company, has been elected president of the company.

Frank A. Merrick, president since 1929, was elected vice chairman. The announcement was made by A. W. Robertson, chairman, following a meeting of the Board of Directors at the company's New York offices.

Paul Judson Myler, president of the Canadian Westinghouse Company, was elected a director of the Westinghouse Electric & Manufacturing Company.

Pick-Proof Lock Developed

A NON-PICKABLE lock which is so ingeniously constructed as to prevent its opening by the use of any instrument other than the owner's key, is announced by Segal Lock & Hardware Company, Inc., New York.

Underwriters' Laboratories, according to the manufacturer, has completed tests which prove conclusively that this lock cannot be picked. Of especial importance is the fact that the use of this pick-proof lock is expected to substantially lower insurance rates.

The new pick-proof invention can be easily

You Can Get More for Your Money in a Truck Today . . . in These New INTERNATIONALS

he Home Telephone & Telegraph Co., Fort Wayne, Ind., uses this Half-Ton International Model D-2 Truck in its maintenance and service work.

ou probably have admired the streamlined exterior of the New Internationals . . . hen you examine and drive these trucks ou will admire the many sound engineering improvements which are advancing the nternational reputation by providing peak erformance at low operating cost. Every ype of load—every kind of hauling—can e exactly suited by these new Internationals. There is a full line, 26 models in 79 wheelbases, from the Half-Ton unit to the powerful Six-Wheelers. See our nearby Company-owned branch or International dealer for complete details on the New Internationals.

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(Incorporated)
180 North Michigan Avenue Chicago, Illinois

INTERNATIONAL TRUCKS

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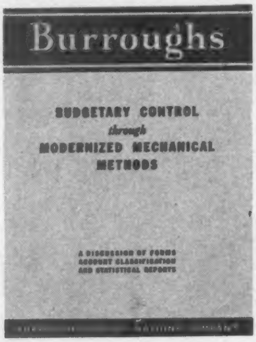
installed on any lock at present in use by merely replacing the present cylinders.

The new device was invented by Samuel Segal and the patent will be controlled by Segal Lock & Hardware Company.

Burroughs Issues Booklet on Budgetary Control

A COMPREHENSIVE, illustrated book, "Budgetary Control Through Modernized Mechanical Methods," has been issued by the Burroughs Adding Machine Company to provide assistance in the promotion and improvement of budget control in governmental, educational, industrial, and commercial accounting offices.



All phases of budgetary control and the preparation of periodic operating reports are included in the text, which was written to provide an easily understandable explanation of appropriation accounting. Large double-page displays of accounting forms are used wherever possible to illustrate the points under discussion.

Appending the text is a glossary of municipal accounting terms as compiled by the National Committee on Municipal Accounting.

The book will be especially interesting to those persons contemplating the reorganization of budget accounting routine, or the revision of account classifications and ledger arrangement, and to persons interested in the beneficial application of machines to budgetary accounting work. Copies may be examined upon request at the nearest Burroughs office.

Tractor Crane for Utility Use

A FULL swing tractor crane, "Jackofalltrades" is announced by the Manly Equipment Company, Chicago.

Made in wheel or crawler type the Manly full swing crane has three drums above the turntable and all operations are controlled from driver's seat. Driver can lift boom, swing boom, lift either or both lifting lines and move tractor either forward or backwards all at the same time.

All operations of drums, brakes, lowering or raising of boom are controlled by air, thus load can be run down with power, or dropped as required on two-line clam shell work.

Other equipment can be mounted without interference.

The "Jackofalltrades" is well suited for public utility work in stores departments, warehouses and coal yards and for handling transformers, poles, manhole covers, caissons digging vaults, gas and water pipe laying and many other uses.

Booklet on Bauer Ladders

THE Bauer Manufacturing Company of Wooster, Ohio, has issued a complete catalog of 32 pages and cover describing Famous Bauer Ladders.

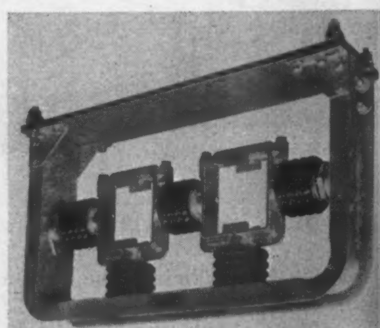
Printed in two colors, this booklet shows how Bauer ladders are tested and describes improvements in manufacture which make for strong construction and safety.

Among the ladders particularly designed for public utility use is the "Lektrick"—an all-purpose extension step ladder developed especially at the request of large power and telephone company users.

Copies of this booklet may be obtained from the manufacturer.

Steel Mill Bus Support

IN the bus support shown in the accompanying illustration, two sets of twelve 6 x ¼ in. bars with wide spacings between groups of six each are carried on wet process insulators in compression. The clamps are provided with rollers and springs permitting bus expansion and contraction.



Heavy-Duty Bus Support

The steel frame is installed on the bottom flange of floor beams by means of ⅝ in. bolts and beam grips. Adjusting nuts between the frame and end insulators insure rigidity of the supports without the use of spacers.

This D.C. unit, which is manufactured by the Delta-Star Electric Company, Chicago, is designed to withstand heavy short circuits with ample safety factors.

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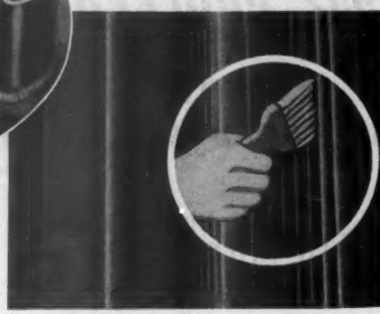
TRANSFORMERS

Pennsylvania UNI-ROW *Radiators*

. . *answer your transformer radiator problems*



Welded

The radiator is permanently welded to the tank, eliminating valves, flanges, gaskets and bolted connections.

Accessible

Each tube of the radiator is easily accessible for sand-blasting, cleaning and painting in factory or field.

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Sturdy

The tubes are of 13-gauge steel and are tested at 100-pounds pressure per square inch.

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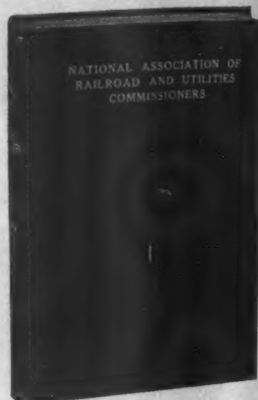

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Just as other tests certify its acid, water and wear-resistant qualities, Crescent rubber here proves its ability to withstand the mechanical strain to which it is subjected during installation and operation.

CONTROL CABLE
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All types of Building Wire and all kinds of Special Cables to meet A.S.T.M., A.R.A., I.P.C.E.A., and all Railroad, Government and Utility Companies' Specifications.

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Plant after plant in the Public Utility industry has swung to Riley Pulverizers . . . definitely establishing Riley as one of the leaders

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Insulators are only as good as the experience and workmanship put into their production

Our product is produced by men of the greatest experience to be found in the industry.

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Victor Insulators, Inc.
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Here's thrilling news! A full size, heavy duty Aladdin Electric ARC WELDER—only $39.25 with De Luxe Accessories! Not a toy, but a big, 100-pound man-sized machine that welds all weldable metals and alloys with amazing efficiency, everything from cast iron parts to light sheet metal. A sturdy, welded-steel-construction machine, yet easily portable on casters.

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WORKS FROM 110-VOLT SOCKET

Simply plug into any 110 or 220 volt A.C. electric socket. Economical—costs only a few pennies an hour to use. Often pays for itself on first or second job. Can be carried right to outside jobs in auto truck or side car. Has complete heat controls. Anyone can use easily. Instructions for doing all kinds of welding jobs included.

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COMMONWEALTH MFG. CORP.
1288 Davis Lane Dept. U-78 Cincinnati, Ohio

R&IE HI-PRESSURE CONTACT INDOOR SWITCHES

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Years of successful experience with Hi-Pressure contacts on outdoor equipment has proven their advantage and effectiveness. Their application to the Type "HPS" Indoor disconnecting switch shown above has resulted in much higher efficiencies along with easier operation. Concentrated contact area under high pressure assures a clean metal to metal contact at all times.

All switch parts are non-ferrous, brushed and lacquered for appearance. Note that all switches have double blade construction for strength and rigidity.

RAILWAY & INDUSTRIAL ENGINEERING CO.
GREENSBURG, PA.

Sales offices in principal cities

PORTRAIT OF AN EXECUTIVE EARNING HIS SALARY . . .

or how to induce a rush of ideas to the head

As many harassed executives realize, it is often possible to be so busy doing things that nothing gets done. There's no time for thinking through knotty problems; no vitality left for constructive planning.

A Dictograph Intercommunicating System helps you correct this condition. It permits you to sit relaxed in your office and speak instantly to any associate or employee. With the flip of a key you establish instant contact and converse in a low tone of voice without even leaning over to talk or hear. No dialing, no waiting while the line is busy, no annoying "call backs," or "listening in" by the telephone operators.

And because most of these advantages are also available to your personnel for conversations among themselves, *their* days are also accelerated, "office visiting" is eliminated, more work gets done. And remember—Dictograph leaves your switchboard free to handle important outside calls.

In short, a Dictograph System engineered especially for your needs, will put your whole organization on your desk inside a "magic box." You should investigate anything that can so effectively ease and shorten your day—and thus permit you to earn and increase that plus income of yours. And if this be selfishness it is enlightened selfishness—the kind that operates for the good of all. Write today for further information.

Designed especially for public utility companies is Dictograph's Public Utility System. Although each installation is individually engineered, all such systems permit a special Customer Contact Clerk to take care of all contacts with customers—service applications, adjustments, complaints, etc. The Dictograph on his desk puts him in immediate contact with any wanted reference source, cuts the time spent on individual transactions and creates a favorable impression on the customers. Let us explain the many advantages of this system.

DICTOGRAPH PRODUCTS CO., INC.

580 Fifth Avenue **NEW YORK, N. Y.**

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MANUFACTURERS OF PRECISION EQUIPMENT SINCE 190

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Easily handled, this outfit backfills a lot of ditch, quickly

Vith its controlled differential steering, the Cletrac is just the outfit for the backfilling job . . . for all ractor jobs.

t's more easily handled . . . more perfectly controlled . . . more quickly maneuvered. The result: nore work done more economically.

nd the Cletrac is built to take it . . . to last longer, sk fewer favors, require less attention on the job.

Among the fifteen models—either gas, tractor fuel, or Diesel powered—there's the right size for every job, 22 to 94 horsepower.

Investigate the Cletrac and the complete line of working equipment—bulldozers, scrapers, air compressors, welders, post hole augers, rock crushers, front end loaders, winches, booms . . . a tool for every requirement.

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he only tractors with controlled differential steering that keeps both tracks pulling at all times . . . on the turn as well as on the straightaway.

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- HINGED FLUE
- HEAVY BURNER WITH
- REMOVABLE JET BLOCK
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ADOPTED AS STANDARD BY MANY OUTSTANDING POWER AND TELEPHONE COMPANIES.

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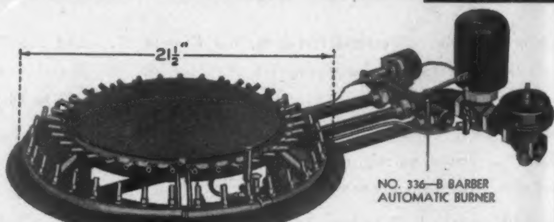
BARBER BURNERS Stand for Service to the Gas Industry



NO. 336—B BARBER AUTOMATIC BURNER

CONVERSION burners come and go. For 20 years Barber Burners have led the field on the *one* test for any burner — *performance!* Dependability, heating efficiency, freedom from service calls are indelibly written into that Barber record! Barber extends active cooperation to Gas Companies, because we are vitally interested in *user* satisfaction both in home heating and gas appliance performance. Stock and display Barber Burners! Consumer sales literature gladly furnished on request.

- "Tailor-made" to *suit* and *fit* the grate dimensions of round or oblong furnaces or boilers.
- Insures a "scrubbing" flame action on side walls of fire box, at the proper level, with 1900° Fahrenheit flame temperature. No fire brick or refractory elements needed.
- Furnished with Baltimore Safety Pilot Control—positive and accurate. Listed in the A. G. A. Directory of Approved Appliances.

We supply Sales Literature, Specification Data Sheets and Practical Sales Assistance. Write for Latest Illustrated Catalog No. 37 and Revised Price List

THE BARBER GAS BURNER COMPANY
3704 SUPERIOR AVENUE, CLEVELAND, OHIO

BARBER *Automatic* JET GAS BURNERS

For Warm Air Furnaces, Steam and Hot Water Boilers and Other Appliances

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These Four Valves Embody 60 Years' Experience

These four valves represent valve building experience acquired over a period of sixty years. • In design; in quality of materials employed; in the precise workmanship embodied in their manufacture, these valves indicate a high degree of quality. • Thousands of users testify to the good service they render. They are recommended to power companies who seek super service from iron body valves.

READING-PRATT & CADY DIVISION
AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT, CONNECTICUT

In Business for Your Safety

READING-PRATT & CADY VALVES

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The PITTCO STORE FRONT CARAVAN *Returns!*

Another chance to tie up with this potent builder of new lighting customers! Another opportunity to sell more current by showing the merchants and property-owners in your territory the advantages of modern, business-building store front lighting and design.

The Pittco Store Front Caravan, with twelve scale models of modern, properly illuminated store fronts, is going to cover the entire country *again*. If it visited your territory on its first trip, you'll know how helpful it was to you in educating your prospects to a better appreciation of adequate store front illumination.

This time, the Caravan will cover your territory more broadly than before. Having presented its store front exhibit in all the metropolitan areas on its previous tour, it will this time present showings of its scale models in the more important *smaller* communities throughout your territory . . . giving every merchant and every property owner a chance to see it.

Watch for the return of the Pittco Caravan . . . and tie up with it in your sales efforts. Your nearest Pittsburgh Plate Glass Co. branch can give you specific information as to when it will revisit you.

Paint · PITTSBURGH PLATE GLASS COMPANY · *Glass*

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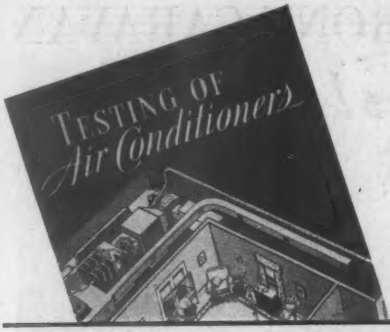

This booklet tells how to TAKE THE *"GUESS"* OUT OF AIR CONDITIONING

Send for your copy

If you are interested in the present and the future of air-conditioning, you will be interested in this informative, illustrated booklet.

For this booklet tells how Electrical Testing Laboratories can help you get the FACTS on unit air conditioners, complete air conditioning installations or such component parts as fans and blowers, motors, condensing units, heat transfer coils, refrigerator equipment, pumps, air filters and control equipment. A copy will be sent you promptly on request. No charge or obligation.

ETL

ELECTRICAL TESTING LABORATORIES

80th Street and East End Avenue
New York, N. Y.

DAVEY LINE CLEARING SERVICE

Spring Tree Trimming

- *Anticipates New Growth*
- *Preserves Safe Clearance*
- *Protects Good Service*
- *Saves Costly Interruptions*

Always use dependable Davey Service

DAVEY TREE EXPERT CO. KENT, OHIO

DAVEY TREE SERVICE

KLEIN

BELTS

Where life depends on a strap or belt of leather no compromise can be made with quality. Klein's leather is first quality, selected for its strength and durability and checked for chemical analysis and tensile strength. All hardware is drop forged from bar steel, individually tested to 1500 lbs. Stitching is done with hot waxed genuine Irish linen thread, lock stitched. Riveting by hand with solid copper rivets reinforces all necessary parts. Standard of quality with linemen and safety engineers everywhere.

Mathias KLEIN & Sons
Established 1857 Chicago, Ill. U.S.A.

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CHEVROLET TRUCKS

again prove their great performance and economy by this A.A.A. CERTIFIED TEST RUN

CONTEST BOARD AAA CERTIFIED TEST AMERICAN AUTOMOBILE ASSOCIATION

SANCTION No. 3562

1938 1½-ton stock model Chevrolet truck demonstrates cost-saving performance in test run from the capital of Canada to the capital of Mexico

CHEVROLET No tests are more rigidly supervised and exacting than tests conducted under the supervision of the A.A.A. Contest Board. All figures listed at the right are *facts*—certified proof of the great performance qualities and dollar-saving economy of Chevrolet trucks! Modernize your truck equipment now. Save money *all ways* with Chevrolet trucks—with low first cost, low operating cost, low maintenance expense—and with rugged, durable Chevrolet construction.

General Motors Instalment Plan—Convenient, Economical Monthly Payments. A General Motors Value.

less than ½ CENT PER TON MILE

14.48 MILES PER GALLON of gasoline

NOT ONE CENT FOR REPAIRS

READ THESE AMAZING PERFORMANCE FACTS

Total mileage covered . . 3,022.2 miles
Payload weight . . . . 4,590 lb.
Gross weight . . . . 9,260 lb.
Average speed . . . . 31.04 m.p.h.
Total gasoline consumed, 208.73 gallons
Miles per gallon of gasoline . . . 14.48
Oil consumed . . . . 2.92 quarts
Total cost (gas, oil, lubrication) . $43.84
Total per ton-mile cost . . . . . $.00313

CHEVROLET MOTOR DIVISION, *General Motors Sales Corporation*, DETROIT, MICHIGAN

"THE THRIFT-CARRIERS FOR THE NATION"

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How The Gas Waster Was Caught By Burnham

WHEN gas is used for automatic heating, no one knows better than you, that it is the heat lag that eats up gas and causes dissatisfaction with bills.

It is the drawing of the cool air into the fire box and through the boiler that cools it down between automatic firings. Still the burners must have air.

The Burnham Boiler cuts down heat lag with its built-in cast iron draft diverter and positive control of primary and secondary air. Overcomes strong chimney pulls.

The diverter also permits safe and satisfactory operation of boiler during periods of down draft, or in event of accidental blocking of chimney.

Its field economy operation equals that of the shop test.

Send for catalog. Get the full facts. See for yourself.

Burnham Boiler Corporation

IRVINGTON, NEW YORK
ZANESVILLE, OHIO

Representatives in All Principal Cities of the United States and Canada

STORY IN PICTURES

This 24-page book, "Grinnell Prefabrication," shows many installation views, explains the economy in cost and labor, easier erection, pretesting, qualification for insurance and other advantages of Prefabrication by Grinnell. Write for your copy today.

The complicated structure of these 12" and 20" low pressure and exhaust headers offers an excellent example of the interpretive engineering that is an important feature of *prefabrication by Grinnell.*

Grinnell engineers worked closely with the designers of the big power plant in which this piping is located. Interpreted their ideas and plans in terms of extruded outlets, circumferential welds, *simplicity.*

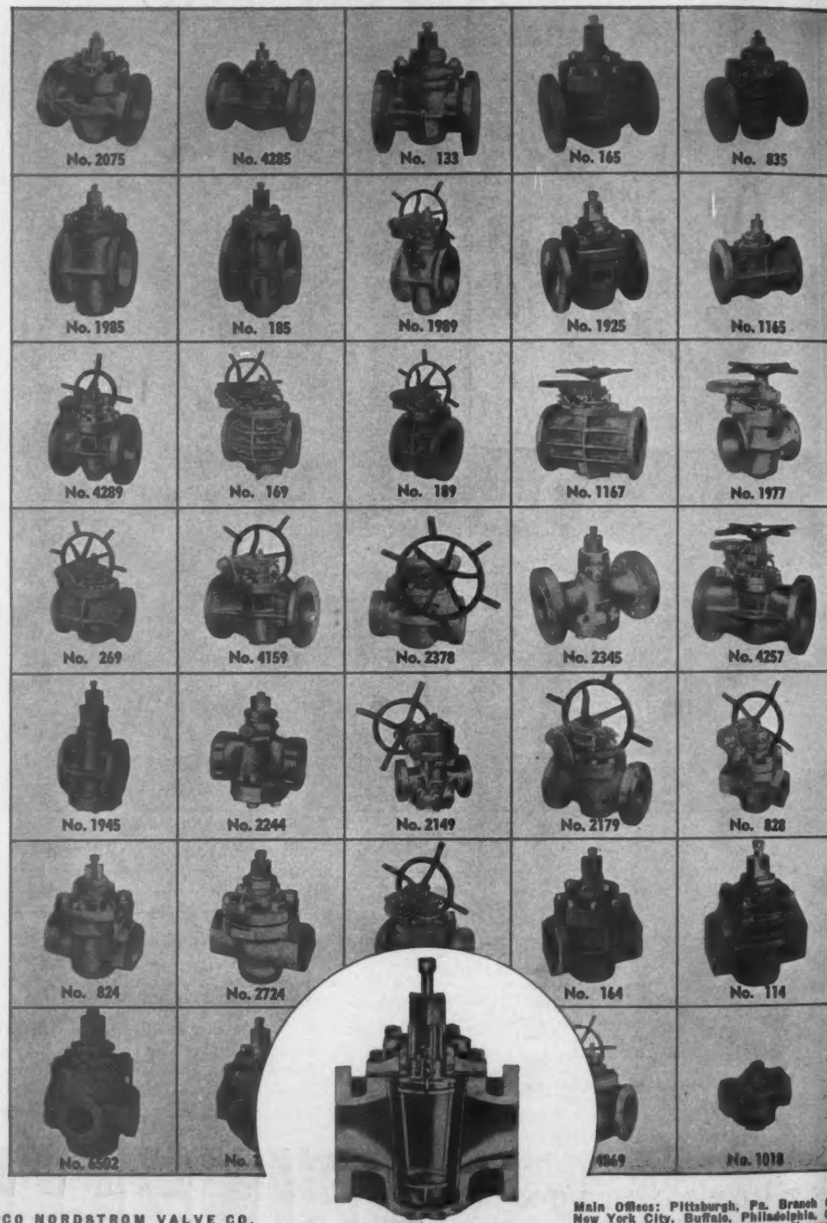
Interpretive engineering is only one of the eight reasons why engineers on routine or pioneering power or process installations say "Give the plans to Grinnell." Grinnell Company, Inc., Executive Offices, Providence, R. I., Branch offices in principal cities.

PREFABRICATION BY **GRINNELL**

WHENEVER PIPING IS INVOLVED

NORDSTROM LUBRICATED PLUG VALVES

meet every major valve need



MERCO NORDSTROM VALVE CO.
A Subsidiary of
PITTSBURGH EQUITABLE METER CO.

Made from Alloys to meet your needs

Main Offices: Pittsburgh, Pa. Branch Offices: New York City, Buffalo, Philadelphia, Columbia, Memphis, Atlanta, Chicago, Kansas City, Tulsa, Houston, Los Angeles, Oakland. Canada: Peacock Brothers, Ltd., Montreal, Quebec.

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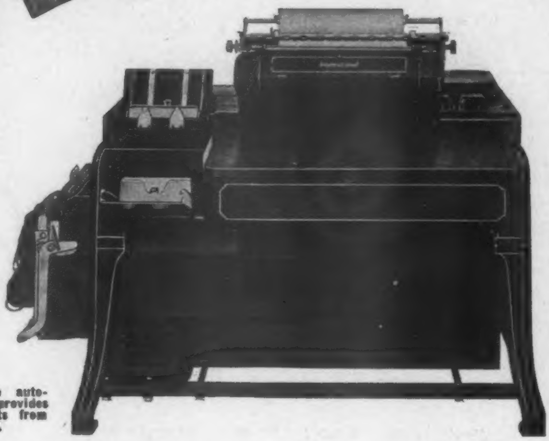
FLEXIBILITY



This machine automatically provides printed reports from punched cards.

The same machine for all phases of UTILITY ACCOUNTING

¶ It isn't necessary to have a large volume of business to benefit by the punched card method of accounting. This modern, widely accepted accounting method now offers a unique and economical advantage to small and medium-sized companies.

¶ This advantage lies in the flexibility of the machine shown above. This one machine will take care of practically every type of utility accounting. Automatically, from punched cards, it will prepare complete, alphabetic and numerical reports. By simply altering the controls on this machine you can switch from Billing to Payroll to Operating Ledgers—all in a matter of minutes.

¶ Let us send you detailed information regarding the accounting economy which this flexibility means to you.

INTERNATIONAL BUSINESS MACHINES CORPORATION

GENERAL OFFICES:
590 MADISON AVENUE, NEW YORK, N. Y.

BRANCH OFFICES IN
PRINCIPAL CITIES OF THE WORLD

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"But just what do all those new Neptune shop-production methods mean to me—as a water meter buyer—in dollars and cents?"

"Just this . . . that the Trident and Lambert meters you get today, because they're built to more exact precision, closer tolerances, finer finish, give you improved accuracy, better mechanical performance, perfect interchangeability . . . .

"You cut your upkeep costs, you keep your revenue return at peak over a longer period.

"To boil it all down, you, as a buyer, get more water meter value for your money. Does that answer your question?"

NEPTUNE
METER COMPANY
THOMSON METER CORP.

50 West 50th St. (Rockefeller Cent
New York City

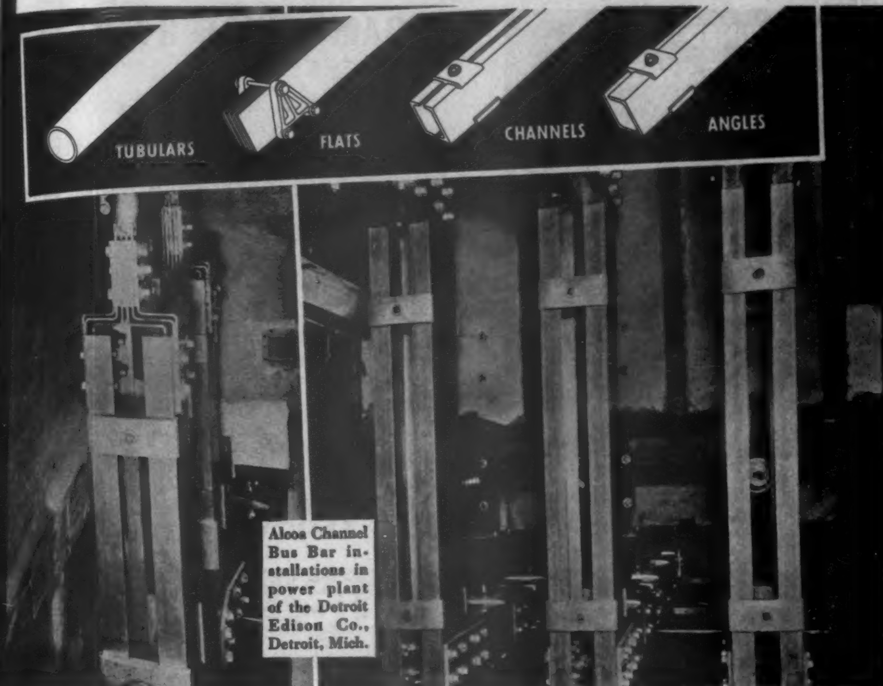
Neptune Meters, Ltd.,
345 Sorauren Avenue
Toronto, Ont., Canada

MODERN PARTS IN A 39-YEAR-OLD TRIDENT

TRIDENT

and LAMBERT WATER METERS

WELL OVER 6 MILLION-WORLD WID



Alcoa Channel Bus Bar installations in power plant of the Detroit Edison Co., Detroit, Mich.

Alcoa Aluminum Bus Bar

FOR INSIDE OR OUTDOOR WORK, FOR LIGHT LOADS OR HEAVY DUTY

No matter what the requirements, you'll find an Alcoa Aluminum Bus Bar suited to the job. Inexpensive, standard fittings are available.

The light weight of Aluminum simplifies installation work. It also results in a minimum of strain being placed on supporting structures, and framework can be lighter. Savings are often possible, therefore, on erection and material costs. Because Aluminum is highly resistant to corrosion, long life is assured even under adverse conditions.

Alcoa Aluminum Bus Bars are assembled in the usual manner, by clamping, bolting or welding. Our engineers are "at your service" to help solve bus bar problems. ALUMINUM COMPANY OF AMERICA, 2134 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA

ALCOA · ALUMINUM

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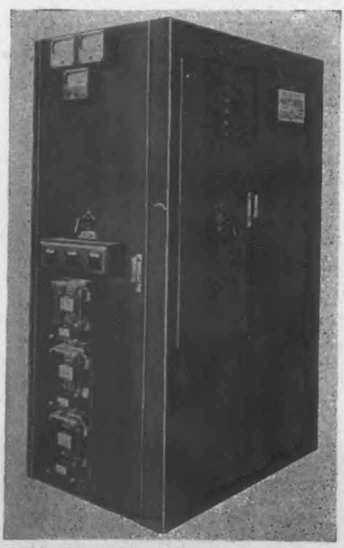
SANGAMO TYPE HV METER

The Type HV instruments combine a standard singlephase HF watthour meter with a synchronous motor time-switch—in various switching arrangements—supplied with or without two-rate register. Low cost installation and minimum space requirements make them desirable for metering and controlling off-peak loads.

Modern Meters for Modern Loads

SANGAMO ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

UNIT TYPE METAL-CLAD SWITCHGEAR



Unit Type "R. I." 7.5 kv Switchgear

This new self-contained Metal-Clad Switchgear houses a 100,000 KVA, oil-blast circuit breaker, instrument transformers, insulated bus, cable terminators and accessories. The depressed steel panel door with concealed hinges carries the instruments, relays and control switches.

On the end of the steel enclosure is a door giving access to the circuit breaker test compartment. It is used in conjunction with an elevating type handling truck and a control wire jumper providing ready means for checking the breaker operation when removed from its cell.

The test compartment contains a control switch, control bus connections and alarm bell.

Ask for Special Publication No. 66

Delta-Star Electric Co

2400 BLOCK FULTON STREET, CHICAGO, ILL.

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In 1937 More Royals were sold than ever before!

BUSINESS GAVE IT THE DESK TEST*

HELPED MAKE THE GREATEST YEAR IN ROYAL HISTORY ! ! !

● Each of the past 4 years, 1934, 1935, 1936 and 1937, set new, all-time high Royal sales records. ● A score of advanced features that reduce typing effort and typing costs are the underlying reasons. ● Give Royal the DESK TEST! Without obligation — on your own secretary's desk, check the ease, speed, accuracy, and economy of this great writing machine.

* The DESK TEST is a fact-finding trial. It costs nothing, proves everything. Phone your Royal representative for information or use the coupon.

ROYAL

WORLD'S NUMBER 1 TYPEWRITER

World's largest company devoted exclusively to the manufacture of typewriters. Factory: Hartford, Conn.

Copyright 1938, Royal Typewriter Company, Inc.

GET A 10-DAY DESK TEST FREE!

Royal Typewriter Co., Inc.
Department WPU-3178,
2 Park Avenue, New York City.

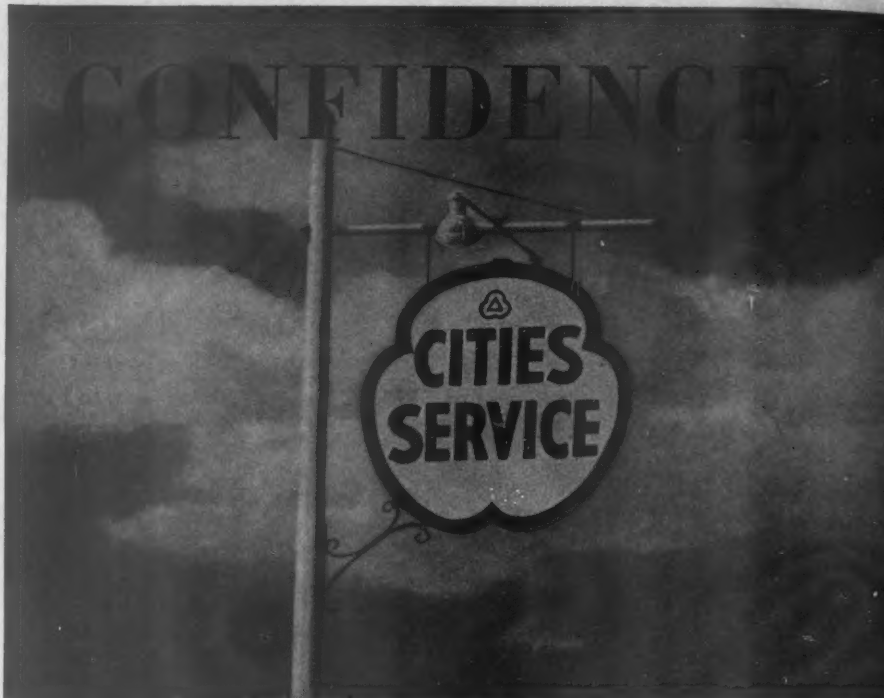
Please deliver an Easy-Writing Royal to my office for a 10-day FREE DESK TEST. I understand that this will be done without obligation to me.

Name ____________________

Firm Name ____________________

Street ____________________

City ____________ State ____________



Whether You Buy A Tankful Of Gasolene Or A Carload Of Oil—You Can Be Sure That

CITIES SERVICE PRODUCTS *Are Unsurpassed!*

THE QUALITY of Cities Service gasolenes, oils and greases is guarded every step of the way from the oil well to you. For Cities Service is a completely integrated unit in the oil industry, engaged in all phases of petroleum operation ... production, transportation and refining. The finished products, backed by 74 years of refining experience, reach you through 15,000 reliable outlets. The Cities Service emblem is your guarantee of dependable products and efficient, courteous service.

CITIES SERVICE *Serves A Nation!*

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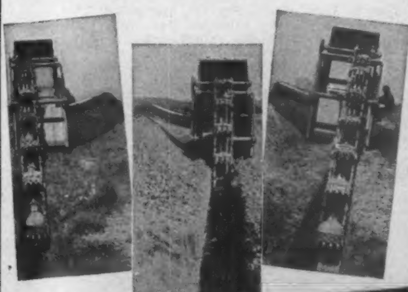
Investigate the advantages of Buckeye DITCHERS

MODEL 11 WHEEL TYPE.
SMALL · FAST · EASILY HANDLED.

MODEL 120 & 160 WITH SHIFTABLE BOOM . . CHAIN AND BUCKET TYPE

The latest boom type Buckeye ditchers have a wide range of usefulness. Trench 16″ or more wide and to 12′ 6″ deep can be dug in hard-to-get-at places or on open country right-of-way, with equal facility. Digging boom may be shifted to right or left allowing the machine to cut trench within 4″ of a curb or 10″ from poles, buildings or other obstructions.



ENGINEERING DESIGN as MODERN as TOMORROW

THEY SIMPLIFY YOUR DIFFICULT DITCHING JOBS

Short runs of small trench, lines that run close to obstructions, scattered jobs that call for moving the ditcher frequently, difficult soil conditions and a variety of other mean-to-handle situations are greatly simplified by the use of the Model 11 Buckeye. Built by the originators of the wheel-type ditcher, this small machine — only 52″ wide over-all, digs trench from 10″ to 22″ wide and to 5½′ deep at speeds up to 416″ per minute.
It has the power and rugged strength to handle any ditching job within its range of trench width and depth and a range of digging speeds that enables you to keep any job moving at the maximum practical speed.

Quickly moved from one job to the next on Buckeye built trailer.

THE BUCKEYE TRACTION DITCHER CO. FINDLAY, OHIO, U. S. A.

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Consulting Engineers
Design—Supervision of Construction
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20 North Wacker Drive Chicago, Ill.

A New Luminaire

■ BEAUTIFUL
■ EFFICIENT
■ LOW PRICED

You will discover new load building opportunities in this new Permaflector Luminaire B-50 that has everything—EYE APPEAL, PERFORMANCE APPEAL and PRICE APPEAL.
The sleek flowing lines assume a simple pleasing shape that reflects the spirit of this streamline age. Its lasting beauty and adaptability to any interior will please your prospects instantly, and make sales easier.
The Luminaire B-50 is equipped with a Permaflector which provides permanent, efficient distribution of light that will build satisfied customers and increased wattage. The low price of this unit is in line with present-day budgets.
Write today for your copy of "TWO NEW PERMAFLECTOR LUMINAIRES" which gives complete data for sales and installation.

PITTSBURGH
REFLECTOR COMPANY

Pittsburgh, Penna.

Pittsburgh Permaflector

Representatives in 28 cities.

PERMAFLECTOR *Lighting*

PERMAFLECTORS • LUSTROLIERS • LUMINAIRES • SPOTLIGHTS • URNS
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Look!

a new RIDGID Guaranteed Stronger and Safer than Ever!

Here's a tool for your expert pipe wrench users who can't be fooled by shiny metal and ordinary guarantees — the new all-alloy RIDGID with new design stronger housing and I-beam handle that adds still more strength to the famous unconditional guarantee.

It practically stops your pipe wrench repair bother and expense. With its replaceable no-slip no-lock chrome molybdenum jaws and unbreakable housing, you've got a wrench you can depend on for any job, in any emergency. Add the pleasure of an adjusting nut that spins freely in all sizes, 6″ to 60″, a handy pipe scale on the full floating hook jaw, handle that's comfortable to your hand on a hard pull, and you see why RIDGID is the wrench millions enjoy owning and using.

Buy from your Jobber

The RIDGE TOOL CO.
ELYRIA, OHIO

A Work-Saving Tubing Cutter

This remarkable little RIDGID tool smooths the tube for soldering as it cuts it. Integral reamer is handy and efficient. *Ask your Jobber to show you.*

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Photo by Prof. J. T. Johnson, Kent, Ohio *Courtesy of Twin Coach C*

BRINGING ALONG THE NEW ONES

IMPROVED street lighting not only adds load to your lines by its own power consumption, but it brings other new load along with it.

Evidence of this comes from a city in the Far West. Power consumption, when street lighting was improved, jumped from 3 to 28 kilowatt-hours per thousand feet of street. The flood of bright light stimulated business, and merchants responded with new, larger electric signs. Sign load increased 225 per cent! And power consumption from lighted store windows leaped from 80 to 200 kilowatt-hours per thousand feet of street.

In a large Southern city, an increase of 72 per cent in load from lighted signs and a 27 per cent increase in load from shop windows were both traced to improved street lighting.

By the same token, if you will estimate the number of kilowatt-hours added to your lines by G-E street-lighting equipment, you will doubtless arrive at a substantial figure. But even that will not tell the whole story. For it would be next to impossible to estimate the new load added by the example of good lighting. You encourage this work of "compound" load-building every time you direct your orders to the manufacturers who are furthering its development.

GENERAL ELECTRIC

96-465B